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THE
DENTAL NEWS LETTER:

A QUARTERLY PUBLICATION,

DEVOTED TO THE

INTERESTS OF THE DENTAL PROFESSION.

VOLUME VI.

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THE DENTAL NEWS LETTER.

VOL. VI.

PHILADELPHIA, SEPTEMBER, 1852.

No. 1.

PROFESSIONAL FEES.

An Essay read before the American Society of Dental Surgeons, at their annual meeting, held at Newport, R. I., August 3, 1852.

BY ELISHA TOWNSEND, M. D., D. D. S., OF PHILADELPHIA.

Mr. President and Gentlemen:—At your last annual meeting, held in Philadelphia, you did me the honor to invite me to prepare and read before this association, an essay on some subject connected with the theory or practice of Dental Surgery, at its present meeting.

In answer to this call I appear before you, and will endeavor to give you such reflections as I have, upon a subject intimately connected with the practice of Dental Surgery, and having, *perhaps*, a greater bearing upon its respectability and the worth and talent to be employed in its future cultivation, than may at first sight be imagined.

I have chosen for the subject of my reflections—*Professional Fees*, and hope it will pay for the time and attention required. The word fee is properly used to express the compensation, reward, or acknowledgment of services of the more honorable kinds, in contradistinction to those which are merely laborious, and whose motive and equivalent are alike expressed by the word *wages*. The usages of language make nice but suggestive distinctions which will serve for useful hints in the matter in hand. Thus we speak of the price of commodities, the wages of labor, the hire of servants, the salaries or stipends of governors, judges, settled clergymen, and teachers, when their recompense is paid for fixed periods by previous stipulations, and limited by formal contracts. But the freer and more voluntary remuneration of physicians and lawyers is always called a fee, or *honorarium*, because, beside the idea of being given as compensation, it contains the other idea of being given as a token of respect, and not as a complete equivalent. Indeed, the primary meaning of the term was rather that of a gratuity, or a cordial acknowledgment for liberal and noble services. The Roman Patron actually received no money-reward for his services to his client, and to this day an action at law cannot be

maintained in England for the fee of a physician or counsel. So strong seems to have been the feeling that the exertion of talent and skill, without measure, the dedication of the life to an arduous and responsible profession, and the sympathies and confidences which bind the parties together, should be wholly honorary, both in the benefits conferred and their substantial acknowledgment. And there is at least this much reason in the rule, that as the law cannot prescribe or exact the excellence of the services expected, so it will not attempt to enforce the gratuity deserved.

But whether this refinement has given way before the ruder necessities of business for good reasons or not, it is, nevertheless, obvious that a professional fee has in it something more than an equitable return for labor and time—something of an appreciative tribute to talent, skill and care, which cannot be the subject of contracts, and does not admit of a market-value estimate. I do not intend to say that men should be governed exclusively by their highest motives, for they have many necessities, but only that all should be respected, and the noblest should form the standard. Some of our interests push us into action without our will; some invite us in accordance with our tastes, and the public has requirements, besides, which we must honorably meet. It is happily true also, that every business necessary to the individual, has, in its degree, some worthy connection with the world's wants and welfare, which give occasions for the union of noble and generous sentiments with the pursuits of private benefits. There are two parties always immediately concerned in professional relations, the individual and his assortment of clients or patients, and a third is never lost sight of by right-minded men—that abstract and impersonal, but very real party, which we call the world, society, or humanity.

Each of these has proper claims to be provided for and duly considered, and there is no department of professional life and duty which has not its bearings upon them all; even the matter of fees will be found, upon full examination, to rank high in the policy of professional conduct, notwithstanding the mere mercenary element, when we endeavor to base a system of compensation upon principles of even justice to all parties, and wholesome influences upon all the interests involved. There is nothing absolute or intrinsic, it must be remembered, in price or value, however essential or ordinary the subject may be; especially, there are some things that are never sold, and there are some others for which no adequate return can ever be made. Commodities are valued at the cost of their production, modified by demand and competition, but services admit of no positive rule. The lower kinds

of labor are sold and exchanged for such price as is supposed to compensate the physical toil which they require; bones and muscles need nothing but food and raiment, and for their use, their sustenance and comfort is perhaps a fair equivalent; but, as we ascend among the imponderables, which the arts and sciences bring into the market along with the material which they employ, weight and measure, cost and worth, grow more and more out of the reach of commercial arithmetic. Stock brokers and merchants, though much given to speculation, would be puzzled to fix a rule for the appraisement of the statues of Steinhäuser, the songs of Jenny Lind, or the pictures of any of the old masters, and it is even more emphatically true, that where extraordinary talent and high training are combined with best moral qualities in the practice of a liberal profession, nothing which the recipient can pay, in any wise measures the value of that which he receives, whether we estimate it by the use it serves, or by the qualities of head and heart which it requires. Such is the verdict of the patients themselves, who are best able to judge, though they are also most interested in a moderate valuation. Indeed, it may be stated as a rule, that low fees are paid with the least cordiality, because they are the price of the most ordinary grades of benefit; while high fees bring along with them the liveliest emotions of appreciative regard, for they are the acknowledgment of highest services and most valued relief. The avocations which require high talent and skill, imply the cost of previous education and practice, and all the dedication of time and denial of self which eminent attainments demand. There is a condition of labor in which the man and all his faculties are surrendered to the masterdom of another, but if such surrender of self, and life, and powers to the advantage of others were the only idea in the word *slave*, the artist, scholar, and man of science would deserve it much more absolutely; for his abnegation is as entire, and the faculties offered in sacrifice, are infinitely greater, and the zeal of his own enthusiasm fires the gift upon its altar. His devotion knows no limits, his service no holidays, and if he receives the means of luxurious living from those he serves, it is most generally at the expense of relinquishing the opportunities of their enjoyment. It is in some perception of these hard conditions, that the public accords to professional men, rates of remuneration which compare so largely with the wages of ordinary labor. The thought is that they should have the means of such accumulation, as will at some early day give them their chance of individual life, so well earned and for whose enjoyment their capacities are so highly cultivated. Besides, there is a tacit expectation that in any position they may attain, they will be

taxed with the toil and expense of that general progress of society which they are so well fitted and so well disposed to promote. Whether the entire philosophy of the principle is compassed or not, there is always at least an instinctive feeling, even in the least reflecting, that large rewards to eminent talents are completely justified. People *may* higggle about the price of commodities in the market place, but they are generally too wise to purchase *cheap* talents when great interests are at stake. Moreover, the unprofessional man needs insurance as much as he needs reliefs and services, and he is willing to give as much or more for that as for the substance of the service itself; nor is such an investment either improvident or unwise. Such reflections suffice to show that there really is no intrinsic limit to the price of professional service, and no external standard by which its absolute value can be measured, yet it has its limitations in fact, and these are found in considerations which are consistent with its honor, and attentive to its necessities, while they restrain the justice of its demands. These considerations are, the fair and comfortable ability of the client or patient to afford a living remuneration for the benefit which he receives. He pays not what he owes, but what he can, and what the operator needs, according to the usual average of their respective conditions in society. There is no other rule than that of such accommodation, for there is no principle of price in the transaction. Hence the usage of large fees from the wealthy, and less from the less opulent, and gratis services to those who are quite unable to meet the lowest rates which it is creditable to receive. This doctrine also makes room for those in every profession, who address themselves purposely to practice less liberally remunerative than the highest grade; for, the whole matter of fees stands upon a sliding scale of compensating adaptations, and the true principles of charge make safe and convenient provision for every sphere of practice; with this difference, be it observed, that the nearer the summit of the scale, the more nearly are all the highest conditions and requirements of duty met and provided for; on the lower side of the medium all the danger lies; above it are all the best securities for all the interests of all parties concerned; still no principle is violated, while the lowest limits of respectability are avoided.

In that sort of labor which requires but little natural skill and *no* learning, underworking is destructive to competitors, for price is the only point in which their rivalry has play, and abatements there work unavoidable mischief, and strikes and violence against offenders are the only remedies, however ineffectual they may be. It is not so in occupations where skill and education have an indefinite power of making and

marking distinctions among the candidates for business. The better qualified are relieved, in great measure, from the mischief of undercharging by others, except in those departments of their calling which are either really or apparently easiest of execution. The better qualified men are injured, indeed, by such improprieties in their *esprit du corps*, their common profession is deteriorated, and the public is wronged; but they suffer no special individual injury, and they may therefore be regarded as wholly unselfish in any solitudes they may have for reform. With the unreflecting and incapable they will not succeed, but such loss they can well afford; their resource is in still higher and higher attainments, and correspondingly higher charges; and the path of duty and honor happily points in the same direction. The quarrel about low prices may be left in the hands of those who are contented with mere respectability in their profession, and those who are desirous to sustain its dignity and secure their own ease, merely on the ground of dignity without its proper excelsior spirit of achievement. If any one says, "I am undersold by my neighbor in the same business," the answer is, "bring to market products which no man can sell for less than you demand, and your complaint is cured." If it is wares or work, only, that you have for sale, you must meet competition by cheapening the cost of production; but if it is talent, and the attainments of study and discipline, then make them richer and dearer, and your success is certain. This is the natural reward of progress, and the appointed discipline to effect it. I have, therefore, nothing to say against low charges except what stands of itself, *per contra*, in the account I would open to the credit of high rates; to which, for a moment, I now ask your attention, and trust the inferences to make good whatever complaint really lies against the opposite policy and procedure.

First. Liberal rates of professional fees are justified against the charge of extortion; for, no wrong is done to the patient so long as the opportunity of choice is left freely open to him. In our profession this is always the case, and the two parties to the business bargain are both equally in condition to take care of themselves and their own interests, and may therefore be trusted with them, without appeal to any other body's conscience or opinions. I do not say, however, that the possessor of a rare excellency, or a happy discovery in his art, may hold its benefits at a *killing* price; but we can, nevertheless, leave him to his discretion, if he happens to be insensible to liberal feelings, for the world will manage to get along without the man who is unwilling to serve it on conscionable terms, as it did before he or his discoveries were known. But, thanks to the mutual dependency of all men,

we need not fear so hard a bargain as this, nor provide against it, for the individual's interest is concerned in a ready acceptance of what he has to offer to the world, and so there are always two parties to the bargain to keep the balance level. Fees are thus secured against excess, and they are still further limited by the competition of equal ability in the same vocation, and if every thing else failed they would be held down by that sufficiently resolute self-interest which in every thing resists exorbitancy; and thus we may dismiss this aspect of the question and turn to that view of it which warrants and enjoins a high standard for remuneration. In the first place, our profession notoriously needs the general character which fair self-appreciation may help to give to it. It is but one branch, and as yet the only branch of surgical art which is separated from the others in practice; for this reason it is held in the *public* opinion to be the simplest of them, and separated for that simplicity, and its supposed remoteness from the general healing art. The better thinkers see in this the fact that it is only the first to give to itself a proper distinctness of culture, and the opportunity of such distinguished advancement as concentration upon a specialty is known to confer upon all the pursuits of men, which have much importance and complexity. In the judgment of the most capable, therefore, it is in no danger of such misconstruction. But it remains for the faculty to take care of its rank and standing with the general public, by charging up to the level of its real professional dignity, that the science, skill and responsibility in it may be felt in all the claims which it justly advances for popular estimation.

Second. On the sheer ground of pecuniary equity. The remedial treatment of diseased teeth, and their connections, has now reached a point which is a surprise to the most distinguished professors of general medicine and surgery. They find the most recondite principles of the parent science, and the nicest skill in treatment, in familiar use in our improved practice, and they are our witnesses, that the same talent, perseverance and devotion are employed upon the teeth that the oculist, the aurist, and lithotomist, require in their older and better appreciated surgery. The claim to equally liberal remuneration is, therefore, well founded in the equal character of our professional qualifications, and the equal value of our operations. Our vocation is no longer merely mechanical, but strictly professional, and is entitled to all the rank and rights thence resulting.

Third. Every practitioner of eminent competency knows that the required attainments are only to be had through such study, observation, training and practice, as must have for their inducement and

reward handsomely liberal emoluments, or the profession can neither enlist nor develop the requisite abilities within its ranks. Talent, sure of higher consideration and better recompense elsewhere, instinctively avoids a beggarly and depreciated occupation. A business must pay the highest remuneration in respect and profit if it would secure the highest qualifications in its membership. Modesty and moderation in some things is commendable, because they hit the mean between extremes, but in some other things they are far more likely to land in the lowest of extremes. Liberality in compensation, taking human nature as it is, and human things as we find them, is the only means of improvement in practice, and progress in knowledge of a growing profession. Let the men who are in a position to answer our highest expectations establish such ample rates for their best work, that they and those who are to come to them may be able to indulge their ambition for superiority; and cheap wages and cheap work, whether banished or not, will cease to be a reproach to our profession and an impediment to its advancement. We want men of genius more than we want any thing else, and the public both wants and knows this want also, and will gladly stand the tariff of protection which will encourage their production. The laws of human nature remaining the same, niggardly wages must be the parent of corresponding meanness of desert. A man has little critical ability in dentistry, who cannot distinguish a dollar plug from a five dollar filling by examining it in the patient's tooth, without further scrutiny, and we all know that he is either a very poor man, or a very poor economist, who chooses the cheaper article of the two. There are too many nice points in the operation, and too many drafts upon the time and patience of the operator, to put him with safety to the patient upon two or three dollars a day,—even with roast beef added, which he will not have the leisure to enjoy, or the vigor to digest. For the sake of the profession's advancement, and the patient's real interest, it is well to compensate five times the skill and care which the lowest rates will any way allow. Let it be understood here, distinctly, that I am not censuring, much less despising, the more moderate rates of charging—which are also more general—so long as they are kept any where within the limits of respectability, and the work done under them does nothing specially to discredit the profession. There is a large amount of dental practice which demands only middling merchantable sort of work, and it would be vain, if not unjust, to deny it. The question in that quarter lies between the patient and practitioner, and *they* must settle it. Neither party is responsible to the progressive wing of the profession;—I am only insisting that there shall be such a wing, and offering the argument for it which presents itself. Our profession, like

those of law, medicine and divinity, has room for considerable variety of ability, and even demands considerable accommodation to its varied objects, so that we might be divided into several groups without at all severing the fraternal unity. Let there be no unwarrantable envy, and no revenging scorn amongst us. The moderate party suffers nothing in business by the competition of the more exacting, and they, in their turn, should not complain on their own account while they can maintain their own position, however, for highest and unselfish reasons, they could wish it otherwise throughout the brotherhood. There is no danger that the less ambitious practitioners will be tempted to pretensions in the matter of fees above the value of their work; the imposture is too open to observation for that, and, what is still better, the highest price would most generally tempt to better deserving by compensating it, and so the right is tolerably well secured, and the wrong prevented. And, on the other hand, there is fortunately enough of strength in the faculty, and enough of its proper enthusiasm among the aristocrats of price to sustain the aristocracy of talent, if they have it; if they have not, the descent is alike easy and inevitable, for life and business have their natural laws, which will be obeyed where they are resisted. The only evil is in not discovering them soon enough, or understanding them well enough to get their greatest benefits.

There is yet another point which must not be overlooked. I have spoken of liberal compensation as a *condition* of professional advancement—a *right* of the meritorious practitioner—a duty and interest of the patient, and a point of honor to the profession. These all bear upon the pecuniary reward of valuable services, and they are, indeed, open to impeachment by that spirit of selfishness in criticism which has the knack of finding its own ugly features most prominent in every bright object which it gazes at, but, even this money claim ministers to another motive and higher style of reward than envy and suspicion can touch with depreciation. I allude to the leisure and the opportunities which ample resources afford for the generous employment of professional skill in cases of worthy persons who can afford us only the pleasure and the pride of professional munificence in compensation for the benefits bestowed. There are men in the fraternity who would feel the restraint of circumstances in this respect as sharply, at least, as in the meagreness of income which compelled it. No profession is honorable, or dignified, or happy, that does not provide for the very many instances in which the finest feelings of our nature ask to be indulged in liberal deeds. Indeed there are not a few instances where only medium charges can be made with comfort to the patient, where yet extraordinary pains, and skill, and time, are taxed to

meet the necessities of the case, and gratify the operator's pride of excellence in his work. A tariff of prices that makes no room, and provides no possibility for occasions which so frequently present themselves in every good practice, must drive every gentleman from the fraternity or sink him in his business below the standard that he would proudly prescribe for himself as a man.

LINTOTT ON THE TEETH.

(Continued.)

Erosion of the Enamel.—Referring to the process of secretion and to the deposit of the enamel, which is the same in the formation of the permanent, as in that of the temporary teeth, it may be well to notice a very remarkable affection, totally distinct in its character from the ordinary decay of the teeth, yet, if possible, more unsparing in its ravages, and more productive of injury and unsightliness. It generally appears first on the front face of the central incisors, either in patches or forming a continuous groove across these teeth, from whence it seems to extend gradually in a horizontal direction to the other teeth, utterly destroying the enamel in its course, and exposing the bony structure to the various chances of decay. The teeth thus attacked are generally tender, and extremely susceptible of pain when brought into contact with cold air, or hot or cold liquids.

There are no known means of arresting its progress. Where the disfigurement thus produced, happens to lie near the point or edges of the teeth, some little may be effected towards its amendment by a moderate and judicious use of the file; but when it occupies a line nearly even with the edge of the gum, which it very frequently does, nothing can be done.

The cause of this extraordinary disease is evidently an imperfect formation of the enamel, resulting from disturbance of the system, either by ill health, or by the too free exhibition of mercury during the process of secretion by the membranes of the dental sacs. I have seen several cases wherein two such lines of erosion existed, and have recently had under my care a young lady of delicate health, who had suffered from several severe attacks of illness during her infancy; her teeth exhibited a triple series of this morbid change—one line being situated on the cutting edge of the teeth, a second midway down the crown, and a third partly above and partly below the terminal line of the enamel. In all these cases I have observed that the line of ero-

sion, though horizontally continuous, deviated slightly according to the order of growth of the teeth affected.

The horizontality of the lines depends upon the successive formation of the enamel, and their direction is indicated in the healthy tooth by the transverse ridges already described as existing upon the surface of the enamel.

CHAPTER IV.

REMEDIES AGAINST DECAY—MODE OF TREATMENT CONDUCTIVE TO PRESERVATION.

Those who possess a due knowledge of the importance of complete digestion to their general health, will be anxious to preserve, unimpaired, the use of their teeth; and could the possessor of a good set of these most useful organs, by any possibility, experience for a few minutes only, the annoyances and comparative insufficiency of the best mechanical apparatus which has hitherto been devised to supply their want, how eagerly would they resort in proper time to those measures by which alone they can hope to retain until old age, the powers of mastication which nature has so liberally supplied!

In the first place I would advise my readers that their dentist be well selected. Let not the cry of cheap prices induce them to trust their chance of future comfort to the mercy of a practitioner whose only object is the fee that succeeds his labor, whose only consideration is to plan the means by which he can most quickly transfer that fee to his own purse. The results of true economy are never arrived at by the sacrifice of *quality to low prices*, which at best are merely nominal.

If the teeth are properly cared for, and skilfully treated in the first instance, the necessity for artificial assistance will probably never arise, and the expense of it will thus be saved. If the aid of the mechanical dentist be already required, be careful not only that he do his work skilfully and effectually, but that he use the best materials. My readers cannot suppose that any practitioner works for his amusement only; he must have his reward. What, then, can those expect to receive who purchase a set of teeth, "*mounted on gold*," at a price little above the first cost of the materials from which they *should* be manufactured?

I am no advocate for unreasonable and extortionate charges; but it grieves me to see quackery and deception carrying such appearances of prosperity as they do in this city, whilst if the public would but judge for themselves, and no longer suffer specious and plausible pro-

fessions to exert such an influence over their decisions, the case would be exactly reversed.

As an example of the trickery to which the public are subjected by its patronage of this class of dentists, permit me to digress a little in recounting the history of a case, which I will preface with an extract from a daily publication :

“ Loose teeth securely fastened, whether arising from old age, neglect, the use of calomel, disease of the gums, or any other cause,” &c., &c.

A lady, advanced in years, consulted me ; her lower front teeth had by the progress of absorption of the gums and sockets, become very loose ; she had yielded to the fascinations of some such advertisement as that above, and had had her teeth “ *securely fastened* ” !! and so, indeed, they were ! From the appearance which they presented, I concluded that a mass of metallic amalgam, miscalled “ *mineral cement*,” had been taken between the finger and thumb of the operator, and pressed into, and between, and upon the loose teeth, tarter, decayed bone, diseased gums, &c., just as a plasterer would take a dab of mortar on his trowel, and stuff it, pell-mell, into the crevices of a clump of loose bricks. The amalgam soon hardened, and formed what I can only describe as *one irregular, rough and misshapen mass*, made up of the four loose lower incisors, and the two canines ; these two last named, as is often the case, being comparatively firm, and forming props of support to the cement. The result of this plastering dentistry had been extensive inflammation of the gums and neighboring parts, internally as well as externally, and the patient was undergoing excessive pain and inconvenience.

She was desirous that I should remove “ *the fastening*,” but as I could not do so without removing the teeth also, and as she was not prepared to submit to this, she left me, and I have since lost sight of the case.

I should be happy to learn some mode by which teeth, loosened in the manner here described, might be *fastened* in a *proper, workman-like and sufficiently permanent manner*. I know of none, nor do I believe it can be effected. I have heard of loose teeth being perforated so as to admit of a piece of gold or silver wire being passed through them, and secured to some one or two adjoining firm teeth ; but this is little if at all preferable to the *metallic plastering mode*.

To return to the proper course to be pursued in order to preserve the teeth. It is, perhaps, of little use to recommend abstinence from hot condiments, from acids, and from fluids taken into the mouth either very hot or very cold, but all of these are injurious to the teeth.

Brush the teeth well, both inside and out, every night and morning with a moderately hard brush, constructed with three rows of bristles, standing so far apart that the elasticity of the hair may have its full play. Do not confine its operation to simply moving the brush across the faces of the teeth from side to side, but give it a rotary, and, as far as possible, a vertical direction, so that the bristles may spring in between the teeth, and free them from the particles of food, and the incipient deposit from the secretion of the tartar glands.

Use also some dentrifice, not of too harsh a nature. Prepared chalk, with a little pulverized orris-root, myrrh, bark and camphor, aided by a very small proportion of well-pounded cuttle fish bone, is the best powder that can be used. The coloring matter usually employed does not add to its efficiency, and serves only to stain the lips and tooth-brush. Have the mouth carefully examined at least once in every three months, in order that any deposit which may have formed may be removed before injury has arisen from its presence; that in case of fracture of the enamel, the rough edges may be smoothed before any lodgment has been effected on them; that if decay should have commenced upon any tooth, (which will be easily detected by the experienced practitioner, long before the cavity becomes apparent,) it may be at once extirpated, and the cavity, if it has so far advanced, be properly and effectually filled up. When this course is followed, a fair chance of permanently arresting the progress of the disease, as far as the cavity under treatment is concerned, is afforded to the operator; and the operation itself is unattended by pain or inconvenience.

Operation of Stopping or Filling the Cavity.—It is not to be supposed that if one cavity in a tooth has been filled or stopped, as it is termed, and the progress of decay arrested in that spot, that the remainder of the tooth is no longer liable to its attacks. The same causes, whatever they may have been, which have already operated to the disadvantage of the tooth, may continue to exercise their influence, and thus a second cavity may be formed, either close to, or farther removed from the first. The operation of stopping, however, if not too long deferred, will be as successful in the second as in the first instance, and when recourse is had to it in due time, the chances are that the tooth so treated will become as serviceable and almost as durable as one perfectly sound.

It is in order to secure to the patient the detection of decay in its incipient state, that I urge a periodical visit to the dentist. The indications of its existence in the earlier stages, before it has penetrated

so deeply as to affect the nerve, are so slight, that without close examination, it cannot be discovered. So unconscious, indeed, of his misfortune is the individual whose teeth are thus affected, that even when, by the removal of a circumscribed portion of the enamel, ocular demonstration of the fact is afforded, it is with difficulty that the unwelcome truth is admitted.

It would be well for those who cannot persuade themselves of the necessity of this close attention to the teeth, if, upon experiencing the slightest painful sensation in any particular tooth, in drawing cold air or fluids into the mouth, they would allow their suspicions to be excited, and would at once seek advice. If the unpleasant visit is deferred until pain is experienced continuously, the chances of success are sadly diminished; not that teeth which have been neglected, even until the nerve is partially or wholly exposed, may not be stopped, and rendered serviceable for years, but the operation is then more tedious and painful and the result more doubtful and unsatisfactory.

Materials for Stopping.—Lead and tin-foil are used for filling decayed teeth; but pure gold, from its power of resistance to the action of the saliva, its unchanging color and great malleability, is the most fitting substance to be employed. The efficacy of the operation will depend, in a great measure, upon the previous preparation of the cavity, and on the mode of introducing the gold; two manipulations that demand a considerable degree of nicety and dexterity.

Preparation of the Cavity.—If the decay be situated on the crown, or on any exposed surface of the tooth, it will be sufficient to perforate the enamel immediately over the spot, if it be not already broken down, and enlarge the opening until a good solid edge is obtained all around it. The decayed bone should be removed with great gentleness, until *not the slightest particle that had been affected remains*, and the white and healthy ivory is fairly exposed. In effecting this perforation, care should be taken so to shape the cavity, that it shall be a little larger within than at the orifice. If the case has been attended to in proper time, this will be completed without giving pain to the patient. If, however, the decay has been allowed to approach too near the dental cavity, pain will be experienced, and the operator must desist, and have recourse to a different and less desirable mode of treatment. The cavity being properly prepared, it should be repeatedly wiped out with fine wool, until it be entirely free from moisture.

Introduction of the Stopping.—A sufficient quantity of prepared leaf-gold, cut into strips adapted to the width of the cavity, and laid across the point of the stopping instrument, should be gradually intro-

duced with a firm but equal pressure, until it forms a solid mass, rising evenly with the edges of the opening. The surface of the gold should then be rendered slightly concave, so that the friction of the food, when masticating, may be warded off by the surrounding edges of the tooth; and, after smoothing and burnishing, the operation will be complete.

Experience proves, that the success of filling the cavity, and thereby stopping the progress of decay in its early stage, depends upon the removal of every particle of the disorganized bone. There is, in my opinion, sufficient reason to infer, that when the orifices of the remaining healthy cylinders of the tubes of the ivory are laid open by the removal of the diseased structure, some portions of the calcareous contents may be poured out over the exposed surface, and by its presence contribute to render the stopping effective and permanent. And I think I am partly borne out in this opinion by the observation, that the contact of the gold with the vital portion of the tooth is rarely productive of inflammation, while the presence of any other foreign body—dead bone for instance—gives rise to a continuance of the disease.

When the decay is situated between the teeth, the bicuspidés or molars especially, it will be necessary, preparatory to removing the decayed bone, to cut away the angle of the crown of each tooth, (supposing both to be affected,) so as to form a cone-shaped space between the two, the necks of the teeth constituting the apex of the cone. This precaution, in addition to facilitating the removal of the decayed bone and the introduction of the stopping, adds materially to its security, by preventing any lodgment of food between the teeth. The same course should be followed in treating decay of the incisors, with this difference only, that the removal of such portion of the tooth as the completion of the operation demands, must be effected from the back or inner surface, guarding as much as possible against interference with the enamel of the front face, and thus avoiding the disfigurement that would otherwise follow.

Division by the File.—Whilst decay of the incisors is in its incipient state, division by an exceedingly fine file, which cuts on one face only, may suffice to remove it. One rule, however, in reference to all operations on the teeth, I especially desire to impress upon my readers, namely, *that under no circumstances is the application of a file, or other cutting instrument to the enamel of a sound tooth justifiable.* Meddling with the enamel of a *decayed* tooth, even, is injurious; it is an evil, and so is decay; but of the two, decay is the greater, and its existence justifies recourse to any proper means of eradicating it.

Cements.—When in preparing the cavity for stopping, the operator discovers that the disease has been allowed to progress too far towards the pulp, and that too slight a plate of healthy ivory remains to shield that structure, no attempt should be made to introduce a stopping of gold. The degree of pressure necessary to consolidate the stopping would overcome the resistance of the healthy bone, and force it into undue contact with the membrane of the dental cavity. The results would be inflammation and acute pain, entailing most probably the loss of the tooth. In this case a cement* formed of a *precipitate of pure silver* may be successfully employed, as it is introduced in a soft state, with but very little pressure, and quickly hardens into a solid mass. The objections to its general use are, that it is less durable than gold, that it oxidizes rapidly, and assumes so discolored and unsightly an appearance, that its employment in the front of the mouth is wholly inadmissible. It serves, however, extremely well for filling extensive cavities in the molars.

In all these extreme cases, let it be clearly understood that the success of stopping is doubtful. The tenderness of the tooth is sometimes so great, that although the cement be used, and introduced with great gentleness, without producing immediate pain, yet after the lapse of a few hours, this unwelcome result may follow. If the suffering be not too acute, for the sake of saving a tooth, it should be borne with for a while, and the irritation alleviated by the application of the lancet or of a leech to the gum. Should the pain continue, the stopping must be removed, and attempts made to diminish the sensibility of the tooth, either by the careful introduction into the cavity of a piece of cotton or lint, saturated with a weak solution of nitrate of silver, or of a paste, with which is combined a small quantity of muriate of morphia, called “anodyne cement.” This must be repeated from time to time, until the tenderness has subsided. The stopping may be then renewed, and very frequently with success. If, however, inflammation should come on with excessive pain, extraction is the only alternative. I have found a camphorated solution of mastick, introduced in the same manner, extremely useful in these cases; so much so, that I now seldom fill a tooth so far decayed, without sponging the cavity previously with this spirit, as a matter of precaution.

* The stopping so continually advertised, under the title of “*mineral cement*,” *succedaneum*, *marmoratum*, &c., &c., is a similar preparation, alloyed with baser metals. From this circumstance, in addition to its injudicious employment without proper preparation, its use terminates generally in increase of suffering and consequent disappointment to the patient.

There is still a more advanced stage of decay, in which the silver cement may be used with much advantage.

It has already been stated that in some few neglected cases, decay attacks and destroys the whole ivory structure of the tooth, without causing pain. In some cases also, individuals, either careless of results, or misinformed as to the possibility of obtaining relief, without undergoing extraction, endure toothache with wonderful fortitude, until the pulp, membranes, nerves, &c., are destroyed, and the vitality of the tooth becomes totally extinct. It will be well for such patient sufferers to learn that this desirable termination of their malady may be hastened by the repeated application of strong camphorated spirit, or of the solution of nitrate of silver, as before directed. The latter, however, should be used with care.

Large portions of the enamel, the walls of the tooth as it were, still remain standing; if unsupported, they will break away piece by piece, until the roots alone remain; but if skilfully filled up and solidified with the cement, a misshapen but nevertheless useful masticator will be formed, which will often endure the wear and tear of grinding the food for years. The only evil to be apprehended in this case, is the formation of an abscess at the extreme end of the roots of the dead tooth. Extraction must then be at once submitted to, but the very existence of abscess renders the operation easy and comparatively painless, and the cure follows immediately on the removal of the exciting cause.

Before filling a tooth in which decay has made such extensive inroads, the operator should ascertain whether abscess does not already exist. If an abscess has formed at the roots of the decayed tooth, and the discharge finds its way out through the gum, the fact will be at once apparent, and the patient should then be cautioned that the filling of the cavity will be but an experiment, as it is very questionable whether the operation may not be followed by such an aggravation of the symptoms as would render extraction of the tooth necessary. The filling of the cavity in such cases, should of course, be followed up by curative treatment directed to the abscess. But supposing no indications of the existence of abscess are afforded by the gum, and that the account of his sensations given by the patient, are not conclusive on the point, the existence of abscess is still to be suspected; for very frequently the matter flows from it through the natural cavity of the tooth, finding vent through the decayed tooth itself. Should the operator venture to fill a tooth in this condition, the stopping would prevent the escape of the matter by its usual course; it would accumulate, causing excessive pain, until burrowing through the alveolar

structure, a new outlet would be established through the gum. If, therefore, having removed all the decayed portion of a tooth, the slightest traces of matter can be discovered on wiping the walls of the cavity, it is advisable to refrain from any immediate attempt to fill it. I have sometimes been enabled to fill such teeth effectively, after a short period, by the perseverance of the patient in keeping the cavity closed by cotton, steeped by camphorated spirit, which seems to excite the morbidly secreting surface to take on healthy action. It is very desirable to effect this if possible, as the pressure of such a tooth in the mouth affects the breath very disagreeably.

CHAPTER V.

DISEASES OF THE GUMS AND ALVEOLAR PROCESSES.

The close relation of these structures in a state of health, and their mutual association in disease, render their description under one head desirable. The diseases of these parts are of two classes; the one consisting of simple and ordinary affections, the local irritation; the other arising from constitutional causes. Of the last it is not my purpose to treat, the subject involving questions of a far more extended nature than the intention of my work embraces.

The most common and frequent disease of the gums, is that affection miscalled "*Scurvy*." This is neither more nor less than chronic inflammation, combined with its consequences, arising from irritation produced and kept up, either by dead teeth or stumps, which, in the process of ejection by nature, become loose, and are forced backwards and forwards during mastication, or by a deposit from the secretion of the tartar glands, which collects around the necks of the teeth, and gradually usurps the place of attachment to the gums. This deposit increases hourly, pushes the gum before it, and produces considerable irritation and inflammation by the contact of its rough surface. The treatment ensuring its speedy cure is most simple and easy; and yet how many individuals go on day after day, enduring constant pain, suffering considerable annoyance themselves from their inability to use the tooth-brush, and disgusting others by the disagreeable odor imparted to the breath by the presence of this disease, permitting their appearance to be disfigured, and entailing a host of future evils on their teeth and gums, which involve their ultimate loss, by the neglect or fear of the simple and painless operation of "scaling" or removing the tartar.

There exists a very popular but most erroneous belief, that this operation is injurious to the enamel, and that it will be followed by loss

of the teeth. If the operator be so unprincipled as to remove it by means of an acid, (the way in which many of the *efficient tooth powders* act, &c.,) undoubtedly the belief will be well founded; but if it be cautiously and skilfully effected by the proper instruments, as often as it may become requisite, nothing will tend more to preserve the teeth, and ward off this first exciting cause of decay.

When tartar is allowed to accumulate, its effects are, a constant unpleasant taste in the mouth; fetor of the breath; inflammation and its concomitants of pain, swelling, sponginess, bleeding and suppuration of the gums; absorption, or wasting away of the alveolar processes, and of the gums, inevitably followed by loosening and falling out of the teeth, through the withdrawal of their means of support; and by denudation, exposing those parts of the teeth, which have no protective covering of enamel, to the action of decay.

The operation of removing the tartar is too frequently performed in a negligent and incompetent manner. It is not sufficient merely to take away that which adheres to the face of the teeth, and spoils their appearance: the most injurious portion is that which is *closely lodged* around and between the teeth, insinuating itself beneath the edge of the gum, where, if allowed to remain, it keeps up the irritation, and forms a nucleus for fresh deposits. If every particle be removed, and the whole exposed surface, both inside and out, be polished with a little finely powdered cuttle fish bone, applied on a piece of common rattan cane, all irritation will speedily subside, and the gum will re-attach itself to the necks of the teeth, and again give firmness to those which had become slightly loosened. It will be necessary to scarify the gums once or twice, if the irritation have been extensive, or long continued; and this, another most simple operation, is entirely ineffective, unless freely performed.

The mere scratching of the gums is productive of a little soreness and annoyance, but of no benefit whatever to the patient. The perfect restoration of the gums to a firm and healthy condition, will be materially assisted, and the sensibility of the denuded parts of the teeth much lessened by the use of an astringent lotion, and of a dentifrice composed of stimulating and astringent ingredients.

The excessive action of mercury is sure to prove, sooner or later, a fruitful source of absorption of the gum and alveolar processes, and will eventually occasion the loss of many of the teeth, either by gradual denudation, or by the formation of the alveolar cavities. In these cases, the falling out of the tooth is generally followed by the spontaneous disappearance of the abscess. So in cases of simple abscess of the gums,

commonly known as gum-boils, arising from the irritation of a dead tooth or stump, its removal, if effected at once, will in most cases produce a cure. If the abscess be neglected, and the pus be allowed to accumulate, it will be productive of serious injury, spreading and involving the alveolar process on either side, forming fistulous openings, internally and externally, sometimes terminating in caries and exfoliation of the jaw bone; and if arising from a diseased molar of the upper jaw, very probably extending its pernicious influence to the membrane lining the cavity of the antrum, the hollow chamber of the upper jaw bone, and giving rise to some one or other of those malignant and intractable diseases, *tumors of the jaw*. These lamentable results may more especially be apprehended in persons of a scrofulous habit.

Indigestion.—A continued disarrangement of the digestive functions, as well as peculiarity of constitution, will be found to induce an increased deposit of tartar. Its effects are also quickly rendered apparent in individuals who are thus afflicted, by the rapid absorption of the gum and alveolar process, and consequent loss of teeth. The general health of the system must therefore receive its due share of attention in the endeavor to restore comfort and utility to the organs of mastication. The medical practitioner and the dentist should co-operate; for the health of the teeth is materially influenced by that of the stomach, and on the other hand the want of proper masticatory powers will weaken the digestive organs, and bring on *dyspepsia* with its direful train of evils.

CHAPTER VI.

IRREGULARITY OF THE TEETH.

The contour of the features depends essentially on the form of the jaws. A lofty forehead, expressive eyes, a well shaped nose, are most effective adjuncts; yet the character of the countenance, as a whole, will be especially influenced by the position of the lower, and the due expansion of the upper jaw. When it is understood how far this desirable conformation depends on the arrangement of the teeth, a due importance will be at once attached to their progress, and the proper degree of watchfulness extended to them, particularly as regards the fairer portion of creation.

Deformity of the jaws may in almost every case be traced to an improper interruption of nature, in *prematurely extracting the shedding-teeth*. So long as man is content to follow nature, all will go well;

but no sooner does he attempt to take the rein, than the mischievous effects of his interference become apparent.

Shape and growth of the Maxillary Bones.—At the early age of six or seven years there are *forty-eight* teeth in the two jaws. They must of necessity be crowded closely together. Up to this period, the shape of the jaw bones has been that of a *half circle*. In the adult they have become *elliptical*. It is therefore evident that the jaws must not only increase in size, in order to accommodate the permanent teeth, but that a material change must also occur.

The first permanent teeth that appear, be it remembered, are the anterior molares, which make their eruption from the gum, close behind the posterior temporary molares. In order to afford a base for these teeth to rest on, the jaw must have elongated backwards. At a later period, the posterior, or second permanent molares present themselves, and later the third molares, or *dentes sapientiae*. All these teeth being situated still farther back than the anterior molares, the jaws must have elongated in proportion to the additional space required. Thus it is that the maxillary bone, from having been originally semi-circular, becomes elliptical.

When the anterior permanent molar has made its appearance, the space constituting the front of the jaw, from that tooth on one side to the corresponding tooth on the opposite side, is closely filled up by the four temporary molars, two *cuspidati*, and four incisors. The permanent teeth destined to replace these, viz: the four *bicuspidæ*, two *cuspidati*, and four incisors, are now far advanced in their development, lying nicely packed together behind and beneath their predecessors, and they are, with the exception of the *bicuspidæ*, of much larger size, attaining to their full growth before they pierce the gums. In what manner, then, are the permanent teeth to find space for their uniform and regular arrangement? They must of necessity remain huddled irregularly together, until by the *expansion and increased growth* of the maxillary bones, the requisite space is afforded them. In reference to this object, the temporary teeth perform the office of so many wedges, assisting by their presence in the maintenance of the shape and expansion of the jaws. If they be removed before the permanent teeth are sufficiently advanced to occupy the space so produced, the consequence will be a *contraction* of the maxillary arch, and of necessity an irregular arrangement of the permanent teeth will follow.

This is one most serious evil clearly arising from the barbarous and injudicious practice of extracting the temporary teeth, before nature fairly indicates her need of such assistance; and it is to be feared that

considerable injury is at the same time inflicted on the permanent teeth, as regards their perfect development, by the probable rupture of the membranes* of the latter.

The process by which nature frees the jaws of the temporary teeth, when their presence is no longer required, is by the *absorption of the fangs*. By this action the crowns are deprived of all other support than that which the attachment of the gum affords, and consequently they will either come away themselves when pressed on by the food, or will be detached easily by the fingers. Sometimes, however, the progress of absorption of the fangs of the shedding-teeth is not commensurate with the growth of the permanent teeth, and the latter will thus be more or less diverted from their proper positions. For this reason it is requisite that the mouth should be frequently examined during the period of changing the teeth; and as soon as the point of the permanent tooth pierces the gum, or presses so hard against it as to be easily discoverable, *then and not till then*, should the temporary tooth, which is in the way, be extracted. If parents would content themselves with ascertaining that no obstacles of this description exist, that the six upper front teeth shut just clear over and beyond the six lower, and would leave the rest of the operations of nature, at least until the age of fourteen or fifteen, the frequency of irregular conformations of the mouth, and consequent deformity of the features, would be greatly diminished.

There are, of course, some exceptions to this rule. Original malformation and contraction of the jaw bones may exist, and the size of the permanent teeth may be utterly disproportionate to the expansion of the maxillary arch. Supernumerary teeth may be formed, and pressing upon

*There is *no connexion* existing between the neck of the temporary, and the sac of the permanent teeth, by means of a connecting cord and peduncle, as asserted by Mr. Bell.

“The necks of the sacs of the permanent teeth, by which they originally communicated with the mucous lining of the secondary dental groove, exist in the form of minute obliterated cords, *separated from the shedding-teeth* by their alveolars, but communicating through a minute osseous canal with the fibrous tissue of the gum, behind the corresponding shedding-teeth.” 1.

“These cords and foramina are not obliterated in the child, either because the cords are to become useful as ‘*gubernacula*,’ 2. and the canals as ‘*itiner dentium*,’ (itiner dentium, from iter, a way or path, and dens, a tooth;) or, much more probably, in virtue of a law, which appears to be a general one in the development of animal bodies, viz: that parts or organs which have once acted an important part, however atrophied they may afterwards become, yet never altogether disappear, so long as they do not interfere with other parts or functions.

1. Goodsir; in Wilson's Anatomist's Vade Mecum.

2. Gubernacula, from gubernaculum, the rudder or guiding apparatus of a ship.

the others, may force them out of their true position, and produce a considerable degree of irregularity; and whenever it so happens that a front tooth of one jaw is, in closing the mouth, brought into irregular contact with another of the opposite jaw, one or both will be driven out of their proper position.

Modes of treating Irregularities.—When at the age of fourteen or fifteen, the maxillary arch still remains too contracted to admit of the desired uniformity of arrangement of the upper front teeth, whether arising from original malformation, or, as it far more frequently does, from premature extraction of the temporary teeth; it will be necessary, in order to obtain sufficient space, to extract either the first or second bicuspid on each side. The use of these teeth can be more easily dispensed with than of any of the others, and their position is so far back in the mouth, that their loss cannot well be discovered. Space being acquired in this manner, supposing that the upper front teeth already shut over the lower, they will, without further interference, gradually fall into the desired position. When the lower front teeth overlap each other slightly, it will in most cases suffice to extract one of the incisors, as from their similarity of form and greater concealment by the lip, the loss of one of them produces little or no apparent deformity. If, however, much space be required, the treatment must be the same as that for the upper jaw.

It very frequently happens that the anterior permanent molares, which as before stated, are the first to make their appearance, are also, probably as a consequence of their peculiar development, the first to decay. When this is the case, it will of course be more advisable to remove the decayed molares than the sound bicuspid, and the result as regards space and arrangement will be the same. When in the endeavor to arrange themselves uniformly, the front teeth of the upper jaw have assumed to themselves a much more extended arch than those of the lower, their consequent projection will thrust out the lower lip, and occasion considerable deformity of the features; moreover these teeth cannot in such cases come into the requisite degree of contact, and their use as *incisors* will be lost. The remedy in this case will also be the removal of a bicuspid on each side of the upper jaw, which will allow the front teeth to fall back, and assume a more natural as well as a more useful position. Should the projection be very great, they will require mechanical assistance to compel them to fall back. The mode in which it may best be effected will be presently described.

When the upper front teeth of the *temporary* set take a direction inwards towards the palate, and by their contact force the antagonist

teeth of the lower jaw outwards, the ultimate result as regards the child, if the irregularity be not corrected, will be that protrusion of the lower jaw which is indicated by the term "*under hung*." Soon after the posterior temporary molares have attained their full height above the gum, or about the fourth or fifth year, an accurate model of both upper and lower jaw must be obtained, from which a casing or capping for the teeth of the lower jaw is to be stamped out of a thin plate of either gold or silver. The capping is to be continued from the first or second molar of one side round to the corresponding tooth of the other; it must fit closely over the grinding surface of the molares, where it must be rendered thick enough to prevent, by its interposition, the contact of the front teeth. The plate must overlap and fit closely also to the outer side of the molares, and be carried entirely down the inner side, and partly on the gum: over the canines and incisors, it must extend rather more than two-thirds down, inside and out—opposite the space between the necks of the molares, the plate is to be perforated, so as to permit the passage of one or more ligatures, which tied around the necks of the teeth, secure the capping firmly in its place—on the ridge of the capping is soldered a thin plate of the metal, edge-wise, which must be smoothed gradually off. The whole apparatus being thus prepared, it only remains so to adjust the opposing edges of the capping and upper teeth, that when properly fixed, the edge of the capping shall, on closing the teeth, just slide inside that of each of the six upper front teeth. In this way the pressure exercised by the patient at each closing of the mouth, may be controlled and brought to bear upon such of the upper front teeth as need it, precisely in the required direction; and as the degree of resistance opposed by these, will be far less than that of the lower teeth assisted by the molares, it follows that they must gradually give way, and submit to be forced outwards.

The presence of the capping will be productive of a slight irritation of the gums, which will facilitate the movement of the teeth. The patient probably will not be able to wear it continuously, but must endeavor to do so. As soon as the edges of the upper teeth have been brought a little beyond those of the lower, the capping may be dispensed with, for the natural action of the jaws will then be sufficient to perfect the desired change of position of the teeth. A proper expansion of the yielding structure of the upper jaw will follow, the permanent teeth, as they form, will assume the same expanded arch, the jaw will solidify with advancing growth, and the threatened deformity will be entirely avoided.

When the anterior *permanent* teeth of the upper jaw have been

allowed to assume this irregular position, they may be moved outwards in the same manner, the capping being fixed to the bicuspidæ, and if necessary, to the first permanent molar also; but a more eligible mode of controlling their position is the employment of a light bar of gold or silver, passing round their front surface, by means of which they may be either drawn outwards or driven inwards, as the nature of the irregularity may demand. The mode of preparing the bar, adjusting and securing it with sufficient firmness, is the same as for the capping already described, excepting that it requires to be fitted to the upper teeth only. The capping over the bicuspidæ, by which the closing of the teeth is to be prevented and the apparatus fastened, is to be carried well down their external surface, and to this part of the capping the bar is to be soldered, extending from the first bicuspid on one side, round to the same tooth on the other. The inner face of the bar is to be modeled so as to fit closely and evenly to as many of the six front teeth as already stand so far forward as to come up to or beyond the desired position. If none of the teeth are thus far advanced, the bar must be made to describe exactly the line of the arch in which they ought to stand. Precisely opposite the centre of each tooth which is to be brought *out*, a strong piece of similar metal must be soldered into the upper edge of the bar; from these points ligatures of a material known as "Indian twist," are to be passed round the necks of the irregular teeth, and drawn daily closer and closer, until the teeth, yielding to the constant pressure thus brought to bear on them, approach the bar, and assume their proper position. When any one or more teeth project beyond the right line, and it is desired to move them *inwards*, a small hole must be drilled through the bar, over against the most prominent point of each; a screw-thread is then to be cut, and a short screw introduced, which working through the bar, will, by a turn or two each day, keep up such a continued pressure against each tooth as will quickly force it back as desired. The projection of the screw-heads must not be so great as to cause annoyance to the lip, and longer screws must be kept ready for use, in order to reach the teeth as they recede from the bar.

In this manner any required movement of the teeth, inwards or outwards, may be effected with great ease, and in very little time, causing no serious annoyance to the patient, the whole apparatus being removed and cleansed every two or three days. By shifting the point of attachment of the ligature, or the direction of the screw, the force may be brought to bear in a lateral course if requisite. Care must be taken that the application of the force thus acquired is so distributed, that the resisting power of those teeth to which the bar is fixed, shall be

much greater than that of the teeth under treatment; and if necessary to secure this, one or two irregular teeth should be acted upon at the same time.

I have stated that the age of fourteen or fifteen to be the period at which I would recommend the use of mechanical means to control the arrangement of the teeth, except in cases of evident malformation, or wherein injury is resulting to the teeth from improper contact, when assistance should be secured sooner. In all ordinary cases, the alteration may be almost as easily effected at the age of twenty as at fourteen. At this advanced period the jaws will have attained their full growth, and it will be evident, if irregularity still continue, that nature requires in this instance at least the assistance of art.

(To be continued.)

For the Dental News Letter.

TAKING IMPRESSIONS OF THE MOUTH WITH PLASTER OF PARIS.

BY C. A. DU BOUCHET, M. D., DENTIST.

The continuous success now met with by dental practitioners, in inserting entire upper sets of artificial teeth upon the principle of atmospheric pressure, is, in our estimation, principally, or at least in the great majority of cases, attributable to the almost universal use of plaster of Paris for taking impressions.

The origin of this beautiful process, although perhaps not very antiquated, is not known to us, nor do we remember having seen in ancient or modern works, a description of the *modus operandi*. Our friend and brother practitioner, Edward Townsend, some six or seven years since, advised us to make use of it, stating at the time that he had been very successful with it. Whoever the originator of the process may be, we deem the thought a most happy one, and the author of it entitled to the sincere thanks of the profession.

Although it might seem, even to the very uninitiated, quite useless to undertake giving any hints or directions to accomplish this operation, the recollection of our first experiment with this article, and the similar result obtained at first at our suggestions, by other practitioners, bid us entertain a hope that a few words on the subject will prove acceptable to some at least.

As a general thing, if the manipulations are properly performed, the patient will prefer plaster to wax, on account of the cool and pleasant

sensation imparted by the plaster. Moreover, paramount advantages are easily secured by the use of plaster which cannot be obtained or expected from beeswax or any mixture of it with other ingredients.

First. A positively correct and reliable impression which can be preserved and used several times, if necessary to obtain duplicate casts of the same mouth.

Second. In the case of recent extraction of many teeth or abnormal tenderness of the gums, we avoid inflicting any needless pain upon the patient.

Third. A plate struck with a model obtained from a plaster impression, will hardly ever require being struck anew.

Impression cups are necessary, of shape suitable to receive and hold the plaster in its position. Messrs. Jones, White & McCurdy have been to much trouble in getting up various suitable sizes of an exceedingly neat, strong and convenient article for this purpose. We hope they will allow us, *en passant*, to return to them our thanks for this, one of the many favors they have extended to us and the profession.

In selecting a cup, it is but to have it somewhat larger than the gum, in order that the sides of the impression may be well supported, so as not to break in drawing out of the mouth.

We have always given the preference to very fine plaster, and our method for mixing it has been to mix it thin at first, and then to add more plaster in small quantities until we have it nearly of the consistency of whipped ice cream, or in other words, of such thickness as will allow to heap it up in the centre of the cup, high enough to reach the deepest part of the roof of the mouth. This mixing should be done promptly, for if the plaster be fresh and of good quality, no time is to be lost in introducing it into the mouth of the patient.

This is, indeed, the critical time; but we have found that by observing the following rule, we could almost always obtain a good and perfect impression, in fact, with more ease than with bees-wax in many cases.

The patient should sit *upright*, in an ordinary chair with a straight back, a large napkin pinned around the neck and another on the lap, the head is directed to be dropped on the breast, and the impression cup properly filled with plaster of suitable temper is then rapidly and gently introduced into the mouth, pressing it a little upward, and at the same time imparting one or two slight backward and forward motions, so as to drive off the air which might be caught by the plaster, thus forming chambers which would spoil the impression.

Frequently, one minute will be sufficient time for the plaster to harden, and upon relaxing the gentle pressure supporting the cup it will be found to adhere as firmly as any atmospheric plate. We would prefer waiting a few seconds longer, still supporting the cup; when removed too soon, if projecting much beyond the cup, the plaster is liable to get broken, giving unnecessary trouble in mending.

Sometimes the adhesion of the plaster to the alveolar ridge will be found so great as to render it impossible to remove the impression without breaking it in a number of pieces; this is of no account if it is a good impression, which we can readily ascertain by replacing the pieces *in situ*.

A few trials, with these hints, will teach the operator how much plaster to use, how thick, &c., so as to enable him to get along with perfect ease to himself and patient.

Some persons might object to plaster on account of uncleanness or some other reason, but when a patient is informed that this is the best plan to secure a perfect fit, his prejudices will at once be dispelled; besides, practice will also teach the operator not to drop any plaster in the mouth, leaving no possible objection to its being employed.

Various contrivances might be adapted to the cups so as to introduce air between the gum and plaster, and destroy, in a measure, the adhesion, and facilitate the removal of the impression; but we apprehend that one of the causes of that adhesion is more than atmospheric pressure, and that it could not be overcome by the introduction of air. We mean that after the plaster of Paris has set, its affinity for water becoming very great, it absorbs all the moisture imparted by the salivary glands to the mucous membrane in contact with it, with the same avidity as the stem of a clay pipe does, that when applied to the lips will stick so close as to denude them of the cuticle. We have not the same difficulty to fear in the roof of the mouth, as the mucous membrane found there is of such thickness and strength as to resist the wear and tear of mastication, and gentle force suffices to remove the impression, which, even when broken, may be made perfect by adjusting the pieces.

Some practitioners have made use of plaster to take impressions for partial sets, but we confess that we do not think it safe, as the plaster in setting between the teeth, must, we fear, entirely preclude the removal of the impression without injury to, and even the removal of some tooth or teeth.

DISSERTATION ON THE EFFECTS OF CARIOUS TEETH.

Read before the American Society of Dental Surgeons, at their Annual Meeting, at Newport, R. I., August 3, 1852.

BY ABR. ROBERTSON, D. D. S., OF MANCHESTER, N. H.

Mr. President and Fellows of the American Society of Dental Surgeons:—

In the dissertation, which by your appointment, I shall read to you to-day, about all that I have proposed to myself to attempt, has been to say enough to elicit some attention to, and, if I may, to call forth some remarks, by the gentlemen of this society, upon a subject, which, although for some years past, I am aware has received a great deal of attention by many of our best dentists, and perhaps by all the members of this society, still seems to me to be deserving of far more attention than even now is usually given to it, as I believe, by dentists; and especially, by the medical profession; because I know that it is not an uncommon thing for patients who are suffering from irritable lungs, from “nervousness,” from marasmas, or from other debility, to be recommended to the country for change of air—for purer air;—when they take with them—*are allowed to take with them*—a perfect cess-pool of filth, containing matter both animal and vegetable, constantly fermenting and decomposing, and emitting nauseous gasses, sufficient to contaminate all the air about them, (unless it be to their windward in a gale,) and through which all the air they breathe must pass. Because, I have frequent occasion to know that patients are often treated, by medication, for dyspepsia, for bronchitis and for Phthisis pulmonalis, when the commencement of the alimentary canal, and of the trachea, is in a state of constant inflammation or irritation from the effect of diseased and decomposing teeth; the whole nervous system disturbed by the same cause; and every particle of food taken into their stomachs, and every breath of air taken into their lungs, vitiated and rendered unwholesome by noxious inhalations, or by the admixture of disordered and unhealthy saliva; and all this train of evils allowed to remain uncorrected—perhaps, unheeded. Because I hear a great many complain of being troubled with, and of having been treated for, “neuralgia,” where there is obvious nervous irritation produced and constantly kept up by dead roots of teeth, or by badly diseased teeth; and with no attempt to remove the cause. Because I often see and hear of treatment by poultices, by epispastics and otherwise, for tumefactions of the face, (sometimes called—though entirely unmeaningly—“ague of the face,”) without attempting to remove, or so much as to inquire into the cause. I say that it requires far more attention than,

as I believe, is usually given to it, and especially by the medical profession, because I am not aware that the influences of diseased teeth upon the general health is scarcely alluded to in any of the works on medical practice, or in any of the lectures in any of the medical colleges. And because I have heard many physicians, and some of them eminent in their profession, say, "I know nothing about the diseases of the teeth!" Now all this might be, in some measure, excusable, if the teeth were isolated organs—if they had no connexion with any other part of the system. But it must be remembered, that although, in their chief substance, they have but a low degree of vitality—are not highly organized—still each tooth has at least one branch, and some as many as four or more distinct branches of nerve supplied to them; and that they are placed in that most important cavity, the mouth; forming, in part, and guarding the entrance to the alimentary canal and trachea; through which passages almost all substances of nutriment and of vivification are received. And that they must, therefore, both by sympathy and function, produce important influences upon the whole organization. Have I not then occasion to say, that, "as I believe," the connexion between the diseases of the general system with, and their dependence upon the diseases of the teeth, usually receives far less attention than the importance of the subject demands? And may their diseases and influences be overlooked or neglected by dentists, or by physicians with impunity? Let us see.

A physician is called to a patient laboring under severe fever; with hard, frequent pulse, restlessness, thirst, pain in the head, and intolerance of light. At the first glance he perceives that an eye is inflamed; and, on inquiry, finds that not many days before, a particle—a very minute particle—of sand or of metal has been blown or cast into and lodged upon that eye. The cause of all this great derangement of the whole system, this pain, this thirst, this fever, is at once explained. But does he commence treating those symptoms of general derangement of the system with antiphlogistics or refrigerants, without first removing the cause of that derangement, to wit: that minute particle that caused that *local* inflammation? Surely not; for every physician certainly knows that well established, that obvious first principle of surgery and of medicine, that to treat any disease successfully, he must first remove the cause.

The physician may, in like manner, be called to a patient who is in the utmost agony. His appearance frightful. Horror depicted in every feature. His eyes distended and blood-shot. His head thrown back, while his neck is drawn forward. The sterno-cleido-mastoideus

muscles, by their rigidity, stand out prominent like broad thongs of raw-hide upon his neck. The muscles of his abdomen present to the hand the feel of boards beneath the skin. In a few hours, perhaps, death comes to relieve the sufferer—the scene is closed. But the physician's inquiries have revealed the fact, that his patient had, not long previously, stuck a little pin, or a small splinter of wood in his hand or his finger, or a nail in his foot. The matter is all satisfactorily explained now. A minute branch of some comparatively unimportant nerve in a remote part of the system has been wounded! The case is Tetanus. Is it then unreasonable to suppose that a tooth so far decayed that its pulp is exposed and inflamed, may produce disturbance beyond the local seat of disease? And more especially, if that tooth is, or if many teeth are so far decayed that their whole crowns are gone; the vitality of their roots destroyed, but they still sticking in their sockets, or in the gum only, and producing inflammation and suppuration, little, if any less, than so many splinters of wood would do, may be the cause of general nervous irritation, of fever, of—death? That such is the fact—that diseased teeth do produce, directly or indirectly, almost all manner of diseases, and their ultimate consequence—death, numerous examples might be quoted to prove; but I shall not now make quotations. What is written “in the books” all can read. I intend only to refer to a few things that I have observed in my own practice, and I will not weary you with many.

Neuralgia would seem to be a very common, almost a fashionable disease. I have seen a great many cases—probably many hundreds—where patients have told me that they were, and for a long time had been, troubled with neuralgia; and many who had been treated for it by medication; but I do not now recollect but very few cases—perhaps not more than three or four—of facial neuralgia, where the cause could not be directly traced to diseased teeth, or dead roots of teeth; nor, where a proper treatment to restore them to health, or, if they were past such restoration, their removal would not cure their (very improperly I think) so called neuralgia.

I very well recollect the case of an old gentleman in Massachusetts, who, about two years ago, wished me to examine a lower bicuspid tooth that gave him a great deal of trouble. On examination I found that the alveolar process and gum had very much receded from the tooth; that it was, in consequence, dead and very loose, and producing a very considerable degree of inflammation. I advised its extraction; and with my fingers (for I had no instruments with me) extracted the tooth. Not long afterwards, the old gentleman sent me word that I had not

only cured him of his sore and aching tooth, but also of a rheumatism in his arm, that, for a long time, he had been troubled with. We have quite a number of cases reported, in our journals and books on dentistry, of a similar kind; but as I am not aware that the pathology of rheumatism is very well understood—that the conditions on which it depends are very fully known—I do not pretend to say that I think diseased teeth are a common cause of rheumatism, or, that they ever are a direct cause of that disease. I doubt indeed if they ever are. But this I do believe and say. If the system is predisposed to rheumatism, or almost any other disease, diseased teeth may, and probably often do, develope it. It is as well established a fact, perhaps, as almost any in the science of medicine, that individuals may be hereditarily predisposed to phthisis—be born, even, with tubercles in the lungs—but by carefully avoiding whatever might tend to develope the disease, as all depressing agents and circumstances, excessive excitements, and nervous irritations, they sometimes live to a good old age, and these tubercles remain dormant. On the other hand the most careless observer knows, that, in those thus predisposed, numerous and even slight causes—as a little exposure to sudden changes in the atmosphere; a wetting of the feet; night watching; continued anxiety or grief; and the like, develope it, in all its fearfulness, and its almost certain result. That the nervous irritation from diseased teeth may do this, Dr. Bond in his “Dental Medicine” quotes one or two very interesting cases, to show. A few weeks since, a friend of mine, now a dentist, related to me a case that came under his observation, some sixteen or eighteen years ago, that I think worth relating for its bearing on this point. It was a young lady, then of this state, (R. I.,) who, at the age of about twenty years, was supposed by her physician, her friends, and herself, to be far gone with consumption. About this time a young gentleman, who was a medical student, and who had paid some attention to dentistry, visited her father’s. On being allowed to examine her mouth, he found her teeth in a very bad condition, and recommended that several of them be extracted, and some be filled. She, at first, objected; on the ground that, at the most, she could live but a very short time, and therefore she thought it unnecessary to submit to the pain of such an operation, when it could be of so little importance to her. Her friend, however, persuaded her to allow him to remove those that were past restoration. From that day she began to amend. Her health was soon entirely restored. She was afterwards married; and about a year ago, when my friend last heard of her, she still enjoyed good health. But, as I have said of rheumatism, I do not suppose that diseased teeth, directly, produce

consumption. But that the irritation, and depression, and loss of rest, and of sleep caused by them, may, and probably often does develop this disease, I have no doubt.

But, without dwelling on diseases that are, or may be, *indirectly* produced, or developed by these causes, I shall venture to say that there are doubtless many, and serious diseases, produced *directly* by decayed teeth.

I have already alluded to a large amount of disease, of a very painful character, under the denomination of neuralgia, where this agency is most palpable, direct, unmistakeable; and I scarcely need allude to the various tumors, some of them of the most malignant kinds, about the jaws, and the glands contiguous to them, caused by the irritation of decayed teeth. They are not of very unfrequent occurrence, nor of doubtful origin.

That distressing, and often fatal disease, bronchitis, there can scarcely be a doubt, is frequently produced, or at least, greatly aggravated, by inflammation extending from the gums to the fauces and throat, as well as by the debility occasioned by the disturbed sleep, the want of rest, and the impure air of which decayed teeth are the certain cause.

But there is another most annoying and troublesome disease, or perhaps I should rather say, class of diseases, not always very clearly defined or understood, but known by the common—the very popular—designation, dyspepsia, where the influences of decayed teeth are most direct in producing it. They are, in my belief, by far the most common cause of dyspepsia. Their influences here, too, act in several ways. Where an individual has many badly decayed teeth the food is usually but slightly masticated. It is therefore not sufficiently disintegrated, nor properly mixed with saliva—it is not properly prepared for the stomach. It is indeed very badly prepared for the stomach; for the little saliva that is mixed with it is impure—vitiating. All the saliva, in fact, that passes into the stomach, whether with food or otherwise, is of an impure, vitiating, irritating character. The food is, therefore, imperfectly digested. Decay of the teeth, being, as I believe,—and as I think is now generally believed by those who have given most attention to it, to be—almost, if not altogether, simply a decomposition of their substance, we have therefore, in such cases, the saliva constantly mixed with the decomposed and putrid animal matter. And where the use of the brush is neglected so that the teeth become loaded with tartar, as often happens, we have vegetable matter added to this decomposing, putrid mass of filth. How irritating! How nauseating! How disgusting! The gas arising from such decomposition renders all the

air taken into the lungs impure, and prevents the proper arterialization of the blood. That they constantly irritate the nervous system I need not here repeat. Thus marasmus is produced by badly digested food, by impure—improperly arterialized—blood, and by constant nervous irritation.

So fully do I believe dyspepsia to be a natural result of these causes, that I rarely, if ever, look into a patient's mouth containing many badly diseased teeth, without expecting to find that patient troubled, more or less, with dyspepsia; and my expectations are almost always verified by inquiry. I recollect a marked case of dyspepsia from decayed teeth that, in my practice, came under my observation about three years ago; a sketch of which I will give you. A lady of about thirty years old—married, and the mother of two or three children—came to consult me about her teeth. She was then, and had been for some years, suffering badly from dyspepsia. Her complexion was sallow—almost of a cadaverous hue. She was feeble and much emaciated. On examining her mouth I found every tooth in her upper jaw—the whole sixteen—badly decayed, and the gums inflamed and turgid. I recommended the removal of all those teeth; and with her consent, proceeded to remove them all, which I accomplished at one sitting of perhaps ten minutes. Her health from that time began to improve—her strength to increase—her complexion to brighten. She is now a robust healthy woman. Similar cases are by no means unfrequent; and to attempt the cure of such a case by change of scene, or of climate, by rest, by exercise, or by medication, without first removing that cause, would be very like filling a sieve with water—a hopeless and a tiresome task.

Before quitting, I must say a little more in relation to the miasmal phase of this subject.

Our legislators enact laws, and our municipal authorities appoint officers—"boards of health"—whose special duty it is to see that no filth, and particularly that no animal or vegetable matters, be thrown upon, or left in the streets and alleys of our towns and cities, to decompose and produce miasmata; and that vaults and cess-pools be not left open to vitiate our air, and render it unhealthful. And all this very properly; and we freely pay our taxes for the making, and the executing such laws. The health of the community requires it. And shall the conservators of the health of the people—the physicians, or the dentists, then overlook or disregard this far more concentrated miasma, and its source—decayed and decaying teeth—situated as it is in the very gate-way of life of their patients?

Although I may possibly place my estimate of the evil influences of decayed teeth, upon the general health of the system, too high; still I think that this, at least, must be admitted. The cause of a very large share of all the diseases to which the human system is subject, depends in some way, either upon unwholesome food, (and I see very little difference in the result whether it is so in itself, or is rendered so in the eating of it) upon miasmata, or upon nervous irritation; and therefore many of them *may* be caused, or if not caused *may* be developed by the vitiation of the food, by the miasma, or by the nervous irritation produced by dead and diseased teeth; and that it must be, at least, *safe* practice in the treatment of almost all, if not of all diseases;—and judicious prophylactic treatment as well—to remove, or allay all sources of nervous irritation, and of depression. And I will further hazard the opinion that the teeth and their appendages are more frequently the seat of nervous irritation than any other portion, if not than of all other portions of the organization; and that if medical gentlemen, when investigating the nature, and the causes of the diseases that they are called to treat, will make it a point, carefully to examine the condition of the mouths, and particularly the teeth of their patients, they will there find a far more fruitful source of disease, and of its development, than very many of them, at least, suppose.

It may be said that these remarks are calculated for physicians—for general practitioners—rather than for dentists. Be it so. I would speak to them on this subject. And I know of no place from whence I can speak to them with more effect, or with better prospect of being heard, than in and through this Society. But if they—our elder brothers—overlook or disregard this subject, it is the more important that we, in our humbler sphere, should pay the more attention to it; that, although we may not be called upon to treat the diseases of which they are the cause, we may do, and be fully prepared to do, all in our power to prevent their occurrence.

For the Dental News Letter.

TREATMENT OF EXPOSED DENTAL NERVES BY HULLIHEN'S OPERATION.

Read before the American Society of Dental Surgeons, August 4th, 1852.

BY C. O. CONE, M. D., OF BALTIMORE.

*Mr. President and Gentlemen—Fellows of the American Society of Dental Surgeons:—*The preservation of the vitality of the nervous pulp of a tooth, when exposed by the removal of its bony covering, has been a subject on which much thought has been bestowed by members of the

profession, and its accomplishment the subject of anxious research and experiment.

I now beg the attention of the association to a description and a report of cases* of an operation founded on surgical principles; and which will, under favorable circumstances, and when judiciously and skilfully performed, preserve the vitality of dental nerves when deprived of their osseous protection.

I present this operation to the consideration of the Association, as the discovery of one of its members, and of whom it is not necessary to say more, than that his modesty equals his talent and skill.

In the year 1848, during a conversation held with Dr. S. P. Hullihen, in relation to the treatment of exposed dental nerves, he expressed an unwillingness to have his previous opinions published, and declined reporting his experience in the treatment of exposed dental nerves, intimating, at the same time, that he was engaged in making some experiments and observations in relation to this feature of dental practice.

During the winters of 1850 and '51, Dr. Hullihen expressed to me, by letter, his confidence in the results of his experiments, and that a dental nerve, when exposed by caries or otherwise, could be so treated by surgical means, under favorable conditions, as to secure the vitality of this tissue.

Although the operation was briefly described at the last named period, I did not hazard the operation until after Dr. Hullihen made a visit to Baltimore, which was during the latter part of the month of August, 1851. At this time, he minutely described his method of operating, and the results of his experience. The first case which presented itself to me after this, was treated by the operation, and the result was such, that in all cases in practice since that time, where it has been deemed advisable, the operation has been resorted to. A careful record of all of these cases has been kept, and is now offered to your consideration as a part of this paper. With the evidence of these cases, proving the value of the operation, I felt that for many reasons, the discovery should be placed before the profession, and accordingly addressed the following letter to Dr. Hullihen:

NO. 33 NORTH CHARLES STREET, BALTIMORE, July 3d, 1852.

S. P. HULLIHEN, M. D.—*Dear Sir*:—Having been made by your confidence, &c., a party in testing in my practice, the value and efficiency of your method of treating dental nerves when exposed, renders me anxious that the operation, which is so important in my experience, to both the patient and practitioner, should be brought before the profession,

* This paper was accompanied with about fifty detailed cases treated by this method.—Ed.

and that, too, in such a manner as shall secure to the profession its benefits, and as far as possible protect the operation from abusive and injudicious practice.

To secure these ends, I look to you, feeling that the most ample experience is to be found where the operation originated, and that the most reliable judgment is to be obtained from you, who instituted the practice, studied the operation and marked its result, and now merits the reward of its discovery. With these feelings and views, and a recollection of your professional devotion and liberality, I propose the following queries, soliciting your answer, namely :

1st. A history of the origin of your operation for the treatment of exposed dental nerves.

2d. A detailed description of the operation, the cautions to be observed in the performance of the same, and the instruments employed.

3d. The symptoms attending and following the operation.

4th. Indications and counter indications for the operation.

5th. Relative success and failure of the operation in general, and in different classes of teeth, and in the same mouth, and at different ages.

6th. Pathological changes dependent on, and effected by the operation, or the philosophy of the operation.

Respectfully yours, &c.,

C. O. CONE.

To this letter Dr. Hullihen replied as follows :—

WHEELING, July 9th, 1852.

C. O. CONE, M. D.—*Dear Sir* :—In answer to your very complimentary letter of the 3d inst., I beg leave to reply to your several questions, in the order in which they are proposed.

First. The history of the origin of the operation to which you refer, is briefly this : In 1845, I was called upon to plug a molar tooth for a lady, in which the nerve was very much exposed, and under circumstances that made it impracticable at that time to attempt the destruction of the nerve, in the usual way. I therefore drilled a hole into the nerve-cavity of the tooth, with the view of permitting the matter to escape, should the nerve suppurate, (a process I felt sure would take place very speedily,) and then plugged the tooth without any reference to the pressure that the plug might make upon the nerve. It was observed both by the lady and myself, that the insertion of the plug did not occasion the slightest pain. In 1846, the lady again called to have her mouth prepared for a whole upper set of artificial teeth. She informed me that the tooth which I had plugged for her, fifteen months before, had never caused her the slightest pain or uneasiness. Upon extracting the tooth I found the fangs in a perfectly healthy condition.

On breaking the tooth, I found the nerve somewhat diminished in size, but in all other respects in a healthy state. The hole which I had drilled into the nerve-cavity was filling up with an osseous deposit at both ends; more at the end next the nerve than that next the gum. There was likewise some appearance of an osseous deposit at the bottom of the carious cavity.

This case immediately opened the way to a number of experiments, tending, if possible, to discover the best course of treatment, in all cases where the nerve had become exposed, and where it was desirable at the same time to plug the tooth. These experiments resulted in the adoption of a very simple and almost painless operation, by which any tooth in the mouth can be plugged, however young the patient, or however much the nerve may be exposed, and that without destroying the nerve or protecting it from the pressure of the plug, causing but little, if any pain to the patient during the operation, and without endangering any painful condition of the tooth to arise afterwards, or any discoloration to take place in it, more than is common to teeth that are plugged, and that too where the nerve is in no way exposed.

Second. The operation consists in making a hole through the gum, the outer edge of the alveolar process and root of the tooth into the nerve-cavity, and then in opening the blood-vessels of the nerve. The hole should be made of about the calibre of the nerve, at the point operated upon. If the drill employed be too large, there will be a difficulty in determining the exact moment when the nerve is reached. If too small, in obtaining the necessary discharge of blood. The drill should be spear-shaped, one cutting edge longer than the other, spring-tempered, and having a small neck. Spear-shaped, because the point is more easily located at the place desired. One cutting edge longer than the other, because such a shaped drill gives indication of its approach to the nerve-cavity, by catching in it, before it breaks through into the cavity. Spring-tempered, because less likely to break. Small necked, so as to permit the free escape of the cuttings made in the process of drilling. The operation may be commenced on either the incisors, cuspidatas, or bicuspidis, by pushing the drill through the gum down to the alveolar process, about a line back from the edge of the process, and directly over the centre of the root of the tooth to be operated upon. Upon the molars, so that the hole will be freely opened upon the main body of the nerve. The drill is then driven forward by means of a very slack string and weak bow, until its near approach to the cavity is recognized by the catching sensation before mentioned. The drill and bow are now laid aside, and all the cuttings

of the drill most certainly removed from the hole ; then with a drill rotated with the fingers, the hole may be opened into the cavity. The friction of the drill upon the gum will prevent the bleeding from it. The entrance of the drill into the nerve-cavity usually opens the blood-vessels, which may at once be recognized by the color, (arterial blood) and by the freedom of the discharge. By pressing a lock of cotton down into the carious cavity, an oscillation may be seen in the hole through the gum. By pressing the tooth into the alveolar cell, the bleeding may be much increased, either of which indications (so far as the making of the opening into the nerve-cavity is concerned) may be considered complete.

Third. The symptoms attending the operation are, of course, the prick of the drill upon passing it through the gum ; then a momentary tenderness when the drill emerges from the alveolar process into the root ; then a slight painful sensation as the drill nears the nerve, which is gradually increased until the drill is plunged into the nerve-cavity ; and strange as it may appear, the pain occasioned by passing the drill into the nerve-cavity, is never half so painful as the mere touching of the nerve through a carious cavity in a tooth. The symptoms after the operation are, first, a slight dull pain of from a half to one minute in duration, after the blood begins to escape from the nerve-cavity. The insertion of a plug upon a nerve, scarcely ever occasions the slightest uneasiness at the time of filling the carious cavity, nor afterwards, unless the opening made through the gum into the root becomes prematurely closed by the cuttings of the drill or a clot of blood, and in this event the pain is instantly relieved by freeing the opening. There is always more or less soreness of the gum after the operation, but never any soreness of the tooth. This soreness of the gum never causes it to become swelled, and it appears to be occasioned solely by the presence of the drill cuttings left in the hole, or from cuttings being pressed into the substance of the gum itself, from using a drill with too large a stem or neck. This kind of foreign matter often gives rise to a small pustule, which forms around the hole made through the gum, and which, of course, will continue to exist until the cuttings are thrown off by suppuration, or otherwise removed. Sometimes, but very rarely, a small red pimple shows itself in the opening made through the gum, which pimple, from its great vascularity, appears to arise from the ruptured blood-vessels of the nerve. The slightest pressure upon it occasions a very pungent pain in the tooth. This little growth is readily destroyed by applying to it *nitras argenti*. One application is generally sufficient to effect a cure. But in the great majority of

cases, where the operation has been properly performed, there is no soreness of the gum, nor ever any appearance of the opening made through it after the first week or ten days from the time the operation has been performed.

Fourth. The indications for performing the operation are, in all cases, where the nerve has become fairly exposed, particularly so in the teeth of young subjects, and where the pressure of a plug will likely provoke inflammation in the nerve by its close proximity to it. The counter indications are, when the nerve is more or less inflamed; in other words, when the tooth is aching, and when from the age of the patient and appearance of the tooth there is reason to believe that the smallness of the nerve is such that no fear of inflammation may be entertained from the insertion of a plug in the carious cavity.

Fifth. The success of the operation when properly performed, so far as I have been able to form an opinion, may be said to be universal. Out of not less than five hundred times that I have performed the operation during the last six years, particularly so when performed in the manner I have just described, I have yet to meet the first case where the tooth has ached, an abscess formed, or where a tooth has become necrosed in consequence of the operation. But when the operation has been improperly done, such as performing it on an aching tooth, or by making too small a hole to permit the necessary discharge of blood, or in suffering a proper sized hole to remain choked with drill-cuttings or a clot of blood, or by breaking a drill in the nerve-cavity, or in carelessly pushing a portion of gold from the carious cavity into that of the nerve—in all such cases, inflammation of the nerve was sure to ensue, causing toothache, oftentimes alveolar abscess, as well as total necrosis of the tooth.

Sixth. Your question respecting the pathological changes that may be produced in the nerve of the tooth by the performance of the operation, I do not feel fully prepared, at this time, to answer. The most careful examination of many cases, and at different periods after the operation has been performed, is the only reliable way of obtaining correct information upon this subject. This kind of investigation I have not had an opportunity to make, except to a limited extent, too limited to venture an opinion.

With many thanks for the interest you have taken in this little operation, and the value you have attached to it by adopting it in your practice, and in kindly offering to lay it before the profession, with your own valuable and critical observations upon the same,

Believe me, dear sir, very respectfully, yours, &c.,

S. P. HULLIHEN.

For the Dental News Letter.

A NEW METHOD OF SUPPLYING ARTIFICIAL TEETH AND GUMS.

BY WM. M. HUNTER, DENTIST.

"Is there any thing whereof it may be said, see, this is new?"

In the following pages I do not know that I shall give any thing new to a certain class of readers, but I feel convinced that the better informed of the practitioners in our profession, will find a practical elimination of good from old ideas.

To Delabarre must be given the credit of having first conceived and executed the union of artificial teeth already baked, with an artificial gum and plate. Vide Fitch's Dental Surgery, 2d ed., Phil. 1835, which, I believe, contains the only English translation of that portion of his work.

To Audibran must we give the credit of having first made the claim, so far as I am informed of having overcome the shrinkage of material, which claim was made in his published work, and was contested twenty years after by Lefoulon, but which principle is claimed by no other author. To Audibran I acknowledge my indebtedness for the idea of granulated body.

Desirabode and Lefoulon both give Delabarre credit for having done this kind of work, and published his formula, the principle of which consisted in uniting a *flux* with the material used as an ordinary base or body, that might fuse at a less heat than the teeth then in use.

Where is the new principle, in the patent claim now made? A *flux* is combined with what is technically termed a body or base, and the application is in every respect similar.

I stand upon the ground that I have perfected a body, (as applied to to certain bodies and enamels made into artificial teeth by Jones, White & McCurdy,) which does not materially contract in the fire, and possesses more strength than any other body known to me, and which, with skilful handling, requires but one heat independent of the soldering of the teeth to the plate, to make perfect work.

It is applicable to the ordinary gold plate as used by dentists, generally in the form of *block-work*, and is made by me in continuous arches where a full denture is required, and it is equally applicable to cases where a few teeth are required, and can be fastened to the plate by soldering, riveting, or any other known method now in use. I also use it on an alloy of gold and platina, 20 and 22 carats fine, both in full arches and in partial sets. It is also applicable to platina plates for full arches, and as there has been a claim recently made for the appli-

cation of platina for dental bases, I quote from Desirabode as published nearly thirty years ago. "It has not been a century since platina (vulgarly called white gold) has been known, and it has not been more than forty years employed by dentists. Its discovery and introduction in the arts has been a valuable resource, because it possesses great consistence, although very malleable; and it is least of all mineral substances, affected by chemical agents and by buccal humors." The same author goes on to say that "M. Delabarre, finding that 20 carat gold and even platina alone are too ductile for certain purposes, and which he wished to have as solid as 18 carat gold, has proposed to make a double plate of platina which has all the solidity of the former." He still further goes on to describe the best methods of soldering platina, and speaks of the system pursued by other dentists of his day. So it will hardly do to set up the claim for novelty at this late date; the *patentee*, however, is excusable, for, as he does not read, he presumed that it was original in the *practice* from which he pilfered it, and so *originated* it.

Since I first put work into the mouth my modes have changed very much, my first efforts being made at a very high heat, thinking that a material of the requisite strength could not be made at a low (say the melting point of gold) heat to stand the fluids of the mouth, but which hypothesis I have found to be fallacious.

In 1849 I purchased recipes of Dr. E. Wildman, of Philadelphia, whom I look upon as one of the most scientific men in the plastic department of our profession, which opened to me a new field of experiment and enabled me to perfect the work at a low heat, his *principles* of compounding and preparing being of great benefit to me.

I will now proceed to the description of the materials used, and the various compounds.

SILEX should be of the finest and clearest description, and kept on hand ready ground, the finer the better.

FUSED SPAR should be the clearest Felspar, such as is used by tooth manufacturers for enamels, completely fused in a porcelain furnace, and ground fine.

CALCINED BORAX is prepared by driving off the water of crystallization from the borax of commerce, by heating in a covered iron vessel over a slow fire, and it is better to use immediately after its preparation, as it attracts moisture. It should be perfectly clean and white, and free from lumps.

CAUSTIC POTASSA OPTIMUS. Known also as potassa fusa.

ASBESTOS. Take the ordinary clean asbestos, free it from all frag-

ments of talc or other foreign substances, and grind fine, taking care to remove any hard fragments that may occur.

GRANULATED BODY. Take any hard tooth material (I use the following formula: spar 3 oz., silex $1\frac{1}{2}$ oz., kaolin $\frac{1}{2}$ oz.) and fuse completely. Any very hard porcelain, wedgewood ware or fine china, will answer the same purpose. Break and grind so that it will pass through a wire seive, No. 50, and again sift off the fine particles which will pass through No. 10 bolting cloth. It is then in grains about as fine as the finest gunpowder.

FLUX. Upon this depends the whole of the future operations, and too much care cannot be taken in its preparation. It is composed of silex 8 oz., calcined borax 4 oz., caustic potassa 1 oz. Grind the potassa fine in a wedgewood mortar, gradually add the other materials until they are thoroughly incorporated. Line a Hessian crucible (as white as can be got) with pure kaolin, fill with the mass, and lute on as a cover a piece of fire-clay slab, with the same. Expose to a clear strong fire in a furnace with coke fuel, for about half an hour, or until it is fused into a transparent glass, which should be clear and free from stain of any kind, more especially when it is to be used for gum enamels. Break this down and grind until fine enough to pass through a bolting cloth, when it will be ready for use.

BASE. Take flux 1 oz., asbestos 2 oz., grind together very fine, completely intermixing. Add granulated body $1\frac{1}{2}$ oz., and mix with a spatula to prevent grinding the granules of body any finer.

GUM ENAMELS. No. 1. Flux 1 oz., fused spar 1 oz., English rose 40 grains. Grind the English rose extremely fine in a wedgewood mortar, and gradually add the flux and then the fused spar, grinding until the ingredients are thoroughly incorporated. Cut down a large Hessian crucible so that it will slide into the muffle of a furnace, line with silex and kaolin each one part; put in the material and draw up the heat on it in a muffle to the point of *vitrification* not *fusion*, and withdraw from the muffle. The result will be a red cake of enamel, which will easily leave the crucible, which, after removing any adhering kaolin, is to be broken down and ground tolerably fine. It may now be tested and then (if of too strong a color) tempered by the addition of covering. This is the gum which flows at the lowest heat, and is never used when it is expected to solder.

No 2. Flux 1 oz., fused spar 2 oz., English rose 60 grains. Treat the same as No. 1. This is a gum intermediate, and is used upon platina plates.

No. 3. Flux 1 oz., fused spar 3 oz., English rose 80 grains. Treat

as the above. This gum is used in making pieces intended to be soldered on, either in full arches or in the sections known as *block-work*. It is not necessary to grind very fine in preparing the above formulas for application.

COVERING. What is termed covering, is the same as the formulas for gum, *minus* the English rose, and is made without any coloring whatever when it is used for tempering the above gums which are too highly colored, and which may be done by adding according to circumstances from 1 part of covering to 2 of gum, to 3 of covering to 1 of gum, thus procuring the desired shade. When it is to be used for covering the base prior to applying the gum, it may be colored with titanium, using from two to five grains to the ounce.

INVESTIENT. Take two measures of white quartz sand, mix with one measure of plaster of Paris, mixing with just enough water to make the mass plastic, and apply quickly. The slab on which the piece is set should be saturated with water to keep the material from setting too soon, and that it may unite with it.

CEMENT. Wax 1 oz., rosin 2 oz. The proportions of this will vary according to the weather; it should be strong enough to hold the teeth firmly, and yet brittle enough to chip away freely when cold. A little experience will enable any one to prepare it properly.

Platina, as usually applied, I think objectionable, wanting stiffness; my method of using it is similar to that proposed by Delabarre, but possessing greater strength than even his method, and by it can be made as light as a good gold plate got up in the ordinary way. I first strike a very thin plate to the cast, and cut out a piece the size of the desired chamber, taking care not to extend it forward to embrace the palatal artery. Add wax to the plate for the depth of cavity, diminishing it neatly as it approaches the alveolar ridge. Cement this plate to the cast and take another metallic cast, strike another thin plate over the whole, and solder throughout with an alloy, of gold twenty-two parts, platina two parts, or with pure gold. The chamber thus formed is precisely the same as "Cleveland's Patent Plate," but the space *between the plates*, for which he obtained his patent, is subsequently filled up, leaving a cavity resembling Gilbert's, but with a sharper edge, when so desired. This space is filled up with base and enamel, and gives great stiffness without the ugly protrusion of the struck chamber. The plate thus formed assimilates much more closely to the palatal dome, not interfering with pronunciation; another great advantage gained by it is the impossibility of warping. I say *impossibility*, because I have submitted plates so constructed to the severest tests,

and never had them to warp. It is well to rivet the two plates together before proceeding to solder, especially gold plates, and to bring the heat carefully upon them; once prepared, there is no danger of change in the succeeding manipulations. I strike up the lower plate with a band on the labial edge about one-sixteenth of an inch wide. This I do by trimming the wax impression before taking the plaster cast, or by building a ridge of wax on the plaster cast before taking the metal casts. Should the band (or turned edge) flare out too much, it may readily be bent in with a pair of pliers, etc. This style of work should not be applied except where the absorption may be said to be complete.

After the plates are perfectly adapted to the mouth, place wax upon each, which trim to the proper outline as regards length and contour of countenance, marking the proper occlusion of the jaws and the median line. These waxen outlines are called the *drafts*, and are carefully removed from the mouth, and an articulator taken by which to arrange the teeth.

When the absorption is considerable and the plate in consequence is rather flat, it is necessary to solder a band or rim along the line where the upper draft meets the plate, about one-sixteenth or one-eighth of an inch wide, and fitting up against the outline of the draft. When the ridge is still prominent, the block will not of course be brought out against the lip so much, and a wire may be soldered on instead of the wider band. I think one or the other necessary, as it gives a thick edge to the block, rendering it far less liable to crack off than if it were reduced to a sharp angle; it also allows the edge of the plate to be bent in against the gum, or away from it, as circumstances may require, and affords in many cases a far better support for the plates than can be given to one in which the band is *struck up* or the edge turned over with pliers, where the block must extend to the edge of the plate. Some few cases do occur when the band may be struck as far back as the bicuspid with advantage, and some in the lower jaw where it is necessary to solder on the band, but the general practice is not so.

The upper teeth are first arranged on the plate antagonizing with the lower draft, supported by wax or cement, or both. Then remove the lower draft and arrange the lower teeth so that the coaptation of the cutting edges of the teeth shall be perfect as desired. The patient may now be called in again, and any change in the arrangement made to gratify his or her taste or whim. Now place the plates with the teeth thereon, on their respective casts, oil the cast below the plate and apply plaster of Paris over the edge and face of the teeth and down on the

cast, say an inch below the edge of the plate. This will hold them firmly in their place while you remove the wax and cement from the inside, and fit and rivet backs to the teeth. When backed, cut the plaster through in two or more places, and remove. Clean the plate by heating. Cut the plaster so that while it will enable you to give each tooth its proper position, you can readily remove it from the teeth when they are cemented to the plate. Adjust the sections of plaster and the teeth in their proper positions. The plaster may be held by a piece of soft wire. *Cement* the teeth to the plate and strengthen the cement by laying slips of wood half an inch long along the joint and against the teeth. (I generally use the matches which are so plenty about the laboratory.) Remove the sections of plaster, being careful not to displace any of the teeth. If it be intended to cover the strap with enamel, you should solder a wire after backing, and previous to replacing the teeth, along the plate parallel with the bottom of the straps, and about one-eighth or one-fourth of an inch from them.

The teeth are now backed and cemented to the plate, and present an open space between the plate and the teeth, which is to be filled up with the base, using it quite wet to fill up the small interstices, filling in the rest as *hard and dry as possible*. Fill the cavity *between* the plates in the same manner, and oil the edge. Oil the surface of the base, envelope in the investient (precisely as you would put an ordinary job into plaster and sand for soldering) and set on a fire-clay slab previously saturated with water. When hard, chip away the cement, cooling it if necessary with ice, until it is perfectly clean. Along the joints place scraps and filings of platina very freely, and cover all the surface you wish to enamel with coarse filings, holding them to their place by borax ground fine with water. Apply pure gold as a solder quite freely, say two dwts. or more to a single set. Put in a muffle and bring up a gradual heat until the gold flows *freely*, which heat is all that will be needed for the base; withdraw and cool in a muffle. Remove the investient and fill up all crevices and interstices not already filled, with covering No. 2; cover the straps and base with the same, about as thick as a dime, and cover this with gum No. 2, about half that thickness. At the same time enamel the base in the chamber, and cover with thick soft paper. Set the plate down on the investient on a slab, with the edges of the teeth up. Fuse in a muffle and the work is completed. Blemishes may occur in the gum from a want of skill in the manipulation; should such occur, remedy by applying gum No. 1.

Should the patient object to the use of platina as a base, the work can be made as above, on an alloy of gold and platina 20 carats fine,

and soldered with pure gold, etc., as above. In all cases, however, where it is used, the upper plate should be made as I have described above, but with platina any kind of plate can be used.

ORDINARY ALLOY. Blocks may be made and soldered to the ordinary plate if the absorption is sufficient to require much gum, without any platina. Arrange the teeth on wax on the plate, fill out the desired outline of gum and apply plaster one-fourth of an inch thick over the face of teeth, wax and cast. When hard, cut it into sections, (cutting between the canines and bicuspid,) remove the wax from the plate and teeth, bind the sections of the plaster mould thus made to their places with a wire, oil its surface and that of the plate, fill in the space beneath the teeth with the base, wet at first, but towards the last as hard and dry as possible, and thoroughly compacted. Trim to the desired outline on the inside, oil the base, and fill the whole palatal space with investient, supporting the block on its lingual side. Remove the plaster mould and cut through the block with a very thin blade between the canines and bicuspid. Take the whole job off of the plate, and set on a fire-clay slab with investient, the edges of the teeth down; bring up the heat in a muffle to the melting point of pure gold. When cold, cover and gum with No. 3 gum and covering.

Another mode is to back the sections with a continuous strap, (using only the lower pin,) fill in the base from the front, use covering and gum No. 3, and finish at one heat. When the blocks are placed upon the plate, the other pin is used to fasten the gold back, which is soldered to it, and the platina half back; neither of these backs need be very heavy, as soldering the two together gives great strength and stiffness. Very delicate block-work can be made in this way, and it is applicable also, where a few teeth only are needed.

A very pretty method, where a section of two or four teeth (incisors) is needed and only a thin flange of gum, is to fit gum-teeth into the space, unite by the lower platina with a continuous back, and unite the joint with gum No. 3. A tooth left ungummed by the manufacturer would be best for the purpose. The same may be applied to blocks for a full arch, remembering not to depend entirely upon platina backs.

The method I prefer for full arches on ordinary plate, is to take a ribbon of platina a little wider than the intended base, and of the length of the arch, cut it nearly through in five places, viz: between the front incisors, between the lateral incisors and canines, and between the bicuspid. Adapt it to the form of the alveolar ridge with a hammer and pliers, and swage on the plate along where the teeth are to be set. Solder up the joints with pure gold, and proceed to back the teeth, &c.,

as before; making preparations for fastening, and removing the slip of platina from the gold plate before enveloping in the investient, when proceed as before.

When the teeth are arranged, insert four platina tubes about one line in diameter, two between the molars, and two between the cuspidati and bicuspidi, and solder to the platina base. These are designed, after the teeth are finished, to be the means of fastening to the gold plate, either by riveting in the usual way, or by soldering pins to the gold plate passing up through the tubes, fastening with sulphur or wooden dowels. By these methods we are enabled to readily remove the block, and repair it, should it meet with any accident, and also, in case absorption should go on, to re-strike the plate, or to lengthen the teeth. The rim should be put on the gold plate after the block is finished: it gives great additional strength and a beautiful finish.

MEMORANDA. In preparing material always grind dry, and the most scrupulous cleanliness should attend all of the manipulations. In all cases where heat is applied to an article in this system, it should be raised gradually from the bottom of the muffle, and never run into a heat. Where it is desired to lengthen any of the teeth, either incisors or masticators, or to mend a broken tooth, it may be done with *covering*, properly colored with platina, cobalt or titanium.

In repairing a piece of work, wash it with great care, using a stiff brush and pulverized pumice stone. Bake over a slow fire to expel all moisture, and wash again, when it will be ready for any new application of the enamel. Absorption, occurring after a case has been some time worn, by allowing the jaws to close nearer, causes the lower jaw to come forward and drive the upper set out of the mouth. By putting the covering on the grinding surface of the back teeth in sufficient quantities to make up the desired length, the coaptation of the denture will be restored, and with it the original usefulness.

Any alloy containing copper or silver should not be used for solder or plate, if it is intended to fuse a gum over the the lingual side of the teeth, as it will surely stain the gum. Simple platina backs alone, do not possess the requisite stiffness, and should always be covered on platina with the enamel, and on gold with another gold back. In backing the teeth, lap the backs, or neatly join them up as far as the lower pin in the tooth, and higher if admissible, and in soldering be sure to have the joint so made, *perfectly soldered*.

As the work on platina plate presents fewer difficulties to the tyro, it would be well to gain experience upon that kind of work, before attempting its application to gold bases. The proper tooth for this

work is not yet in the market, but I think will be ere long. A tooth finished at one heat by the manufacturer is best, although any tooth may be used that has been painted at a higher heat than the melting point of gold, being careful not to use any tooth in which gold may have been incorporated, as it will change color in the fire. A tooth with a natural shaped crown, but thinner than the natural tooth, with the platina pins at a point that will allow of the back being covered without being clumsy, is wanted, and likewise a tooth resembling the natural tooth, except that the molars be made with one conical fang similar to a *dens sapientiae*.

At length we have John Allen's vindication (?) laid before the dental public, and so childish and contemptible an effusion I have never before seen; and as the writer says that he will "only notice the main points upon which my (his) calumniators have predicated their grounds of opposition," I will show that he has not even touched upon any of the main points charged upon him by me or my friends. The first main point which he has not noticed, is, that Dr. Brown described to him a piece of my work done as it is now: and that too, months before he had even entered his *caveat*, which, recollect, is only a bar to applications for a patent for the same or similar inventions from any other quarter, in which case the patent will be given to him who proves priority. Even John Allen himself is not so reckless of his reputation as to hazard the assertion that I could not have proved priority as to the methods herewith described. Yet I do not wish it to be understood that I lay claim to originating the principle of Allen's patent; that was described by Delabarre and others, and which consists in uniting teeth to each other and to the plate by a fusible silicious cement, (and which was declared at sight to be all sufficient by the Miss. Valley Ass. of Dental Surgeons,) and is but a feeble imitation of what I had previously produced: and further declare, that he had not the genius to accomplish even that end without the aid of a "dunder-headed Dutchman," to use his own choice expression. In proof of which, I need only refer to the similarity between the "Steemer recipe" and that of the Letters patent, and to his own acknowledgment in his vindication, of having tried a compound made by Steemer; without referring to further documents which exist, a main point, I think, in sustaining his patent.

I think him very impudent or very foolish at this time, to call upon the unfledged noviciates of the Ohio School and sixty dentists, to prove that the patent mode is sufficient to stand the "powerful action of the masseter muscles," for the purpose of controverting my original asser-

tion that it was not. Failing in his first attempt at imitating what I had accomplished, he has again tried his imitative powers, and now claims as a part of his patent the soldering of the teeth to platina plates, and then covering the strap with gum!! No man in his common senses would ever dream of soldering the teeth to the plate, from reading the claim and specification of his patent, or elsewhere set forth by him or any of his friends. It is for FUSIBLE SILICIOUS CEMENT, AND THAT ONLY.

Whenever Allen produces an article which will unite the teeth to each other and to the plate, without the aid of backings or other fastenings, then will he be entitled to some credit, and not till then. Whenever he sells a *patent right* for a mode of setting teeth in which backs are necessarily used and soldered to the plate, he is guilty of a fraud and liable for damages. In this case as in all other dealings with him, I say, "*caveat emptor*."

He also attempts to show that my work is merely block-work soldered on. I like his impudence in the face of the fact, that one of the specimens described to him was on platina plate, and the straps covered over with gum, and the only one exhibited by me at the "World's Fair," my other specimens have been left out either through the negligence or unfairness of those having them in charge. And farther, that he only got platina plate to *experiment with*, from learning that I was using it, not having taken all that was ordered for me. But the height of impudence (for which he stands pre-eminent) consists in his claim to a platina base as applied to gold plates; a claim which was made for me by Dr. Leslie at the meeting of the Miss. Valley Asso., when this matter was brought up, and it was reported by him to the American Journal of Dental Science.

I said, "a fracture once occurring, what are the means of repair that will prevent a recurrence of the evil?" and he forthwith accuses me of ignorance, and says that it is very easily repaired. True, it may be repaired by again putting it through the fire, but is just as liable to break as it was at first, the only means of strengthening being to add on more of the *cement*; whereas should a fracture occur in my work, I would strengthen by soldering on a stouter back, thereby "preventing a recurrence of the evil." I therefore repeat that inquiry.

Now for a few more of the "main points" that he has not thought it necessary to answer.

I accused him of an attempt to bribe, and he has not answered it.

I accused him of surreptitiously obtaining a patent with a fraud upon the face of it, and he has not answered it.

I accused him of prevarication and disgraceful evasion before the American Society, and he has not answered it.

I accused him of having offered to pay for a gold medal to be awarded by a Society, and he has not answered it.

I accused him of wilful fraud in placing Brown's note in such juxtaposition, and he has not answered it.

I accused him of knowingly making a false claim when he claimed to have overcome shrinkage, and he has not answered it.

I accused him of having procured a formula from Chas. Steemer, which he at one time denied, but now has answered by publishing a certificate from Steemer, that he (Steemer) does not believe that Allen uses it. And this too, after most positively stating that Steemer never knew *any thing* of the material except what he had learned from him.

I accused him of being an *ass*, and he *has* answered it.

The whole matter reminds me of a little story which I have heard, and which can be vouched for. Many years ago, Dr. Asinus called upon an eminent dentist of our acquaintance, but who shall be nameless, gathering items and any little things that might be picked up. Among other things attracting his delighted vision was a *plate punch* such as is now in general use, but then was but little known in the west. An offer was made for it by Dr. A., which was refused, but the information given as to price and whence it might be obtained; but railroads not being completed, telegraphs unknown, and the Am. Express Company undreamt of, it did not suit our "fast man" to wait, so he requested the privilege of making a drawing, which was granted. So far good. The right disposition was manifested by our eminent friend, (for he is such Messrs. Editors,) but for the sequel and to the point. A few months subsequent, a pedlar of dental patents, secrets or what not, called on our eminent friend for the purpose of selling to him "De greatest instrument dat ever was made in de mechanical dentishtry, de invention of de learned Dr. Asinus." The instrument was a plate punch almost identical in outline with the one which the ingenious Dr. A. had made a drawing from. Comment is unnecessary.

In conclusion, I would state that I challenge John Allen to enter suit against me, or any person I may teach, or any person who may use my published formulas or modes, and furthermore, that I will show him work in the mouth of my patients, if he wishes to prove that I am using a method such as is herein or elsewhere described, that he may no longer say that he is only waiting for information of such fact to enter suit.

An evasive trickster I despise; give me a man of his word and I will

admire him for at least one good trait, and Allen now has an opportunity to show whether he can lay claim to that quality, and at the same time keep up a semblance of justice towards those who have purchased of him PATENT RIGHTS. Respectfully, &c.

WM. M. HUNTER.

ON MAKING CASTS.

MESSRS. JONES, WHITE & McCURDY :—*Gentlemen* :—I have so far neglected to send you the article on making casts, but will do so now, in as brief a space as possible, so that if you do not think it worth its place in the News Letter, you will not be bored very long with it.

I first take the impression of the mouth in wax, and from that stamp a tin plate, leaving it wider than the depth of the alveolar; with this tin plate, I take the impression in plaster, (the edge of the plate must be turned in a little, in order to prevent the plate from falling off from the plaster, when it is taken out of the mouth;) after taking the impression perfect with plaster, and letting it get hard, I have a sheet iron cup, about three inches deep, by two and a-half in diameter at the bottom, and three at the top; into this cup I pour plaster and sand mixed to the depth of about half an inch; into this the tin plate, with the impression, is pressed until the plaster and sand come up to the edge of the impression, making it smooth all round; this I dry and heat as hot as it will bear without cracking, and then pour in melted zinc, until the cup is nearly full; if the plaster is not fully dry the zinc will lboil; hot coals must be kept on the top of the zinc until it stops boiling, in order to prevent air cells; after it stops boiling, and begins to cool, a crust will form on the top, as it cools there the fastest; if this is not disturbed, the zinc will contract as it cools, and draw away from the plaster in the bottom, and spoil the cast. To prevent this the crust must be broken open with a stick as it hardens; this will make a hole in the cast, which can be filled up with more zinc; after it is hard and cold, the cup can be turned up and the zinc knocked out, the cup being beveled it will come out very readily. Then to make the counter model, wind paper around the zinc, and pour in melted block tin. Others in the profession may be familiar with this method of making casts, but I have never known or heard of any others doing it except my brother.

I will leave it for you and others to judge of, whether it is superior to the old method of moulding in sand; but I am certain that if any one will try it, and see the perfect cast they make, they will throw away the sand.

Respectfully yours, F. DAVISON.

Liberty, Va.

REPORT OF THE ANNUAL MEETING OF THE AMERICAN
SOCIETY OF DENTAL SURGEONS.

The thirteenth annual meeting of the American Society of Dental Surgeons convened at the Ocean House, Newport, R. I., Tuesday, Aug. 3d, at 10 o'clock, A. M.

The meeting was called to order by the President, Dr. Eleazer Parmly, of New York.

Dr. C. O. Cone, of Baltimore, Secretary of the society, read the minutes of the last meeting, which were approved.

Dr. E. Townsend, of Philadelphia, offered the following resolution, which was adopted, viz :

Resolved, That all gentlemen in the profession, who may be present, although not members of this society, are invited to attend the meetings of this association.

A memoranda of the correspondence of the Corresponding and Recording Secretaries of the society, for the last year, was read by Dr. Cone.

Report of the Executive Council and Examining Committee, on the order of business, was called for, and read.

Dr. Cone tendered his resignation as a member of a committee of the society appointed to collect facts, and report on the subject of irregularities of teeth.

Dr. J. Parmly offered the following resolution, which was adopted :

Resolved, That in consequence of the non-reception of certain papers which the society understand were forwarded by Dr. Dwinelle, bearing upon his case, and which have failed to arrive in time for the action of the society, Dr. Dwinelle's case be laid over until the next annual meeting.

The report of Treasurer read, and referred to Auditing Committee.

Committee on amendments to the Constitution were discharged, and a new committee appointed to draught a new Constitution and By-Laws for this society.

Report of Committee on Dental Irregularities postponed.

Committee on Microscopic Examinations reported progress, and were continued for another year.

Committee on Foreign Dental Literature, not present. Adjourned till to-morrow morning.

August 4th.—Meeting called to order by the President. Several members arrived since yesterday. Minutes of yesterday read and approved.

Committee on Dental Irregularities called for. Dr. Bridges, of

Brooklyn, chairman, reported, that in consequence of ill health, he had not been able to attend to the duties of said committee. Dr. J. Allen had no report in form—expected to have had an opportunity of conferring with other members, and thus concentrating a report. But as no such opportunity had been afforded him, was unable to present a report. Whereupon, a short discussion arose, and on motion, the committee were dissolved for the purpose of appointing a new one.

Dr. J. D. White, of Philadelphia, being called upon, read to the society a paper on the Anatomy and Physiology of *Dentine*. This was a tersely written paper, evincing minute and critical attention to the subject which he had taken in hand. This address will be found in our pages.

Committee on Townsend's resolutions reported a series of resolutions touching the necessity and propriety of dental collegiate instruction, and the establishment of Lecturers and Professors of this specialty, in the medical schools of this country, which gave rise to quite a spirited discussion, after which the resolutions were laid on the table.

The Committee on Practical Dentistry asked to be discharged from their further duties, as such committee, and stated as a reason, that the dental journals and periodicals of this country, were superseding, by their able and judicious publications, any report from this committee, on the subject of Practical Dentistry. They were accordingly discharged.

Dr. E. Townsend read a paper on the subject of *Professional Fees*. This paper was written in the characteristically elegant style of Dr. T., and the subject, which is worthy the attention of the dental profession, will be found in this number of the Dental News Letter.

Dr. E. J. Tucker, of Boston, read a paper on the subject of *Dental Irregularities*, which was fruitful of instruction upon the subject treated, containing many hints of importance to the profession.

Dr. Robertson, of Manchester, N. H., read an essay upon the subject of the influence of diseased teeth and gums upon the general health of the system, a copy of which he has kindly furnished us for publication, and which we would be glad to see in the hands of every practitioner of medicine.

The thanks of the society were voted to Drs. White, Townsend, Tucker and Robertson for their several papers, and copies requested for publication.

On motion of Dr. Hullihen, of Wheeling, Va., voted, a gold medal, of the value of \$25.00, be awarded by this society for the best paper

upon the cause and treatment of irregularities of the teeth, to be read at the next annual meeting of this society.

The election of officers resulted as follows :

For President—Eleazer Parmly, New York ; 1st Vice President—E. Townsend, Philadelphia ; 2d Vice President—J. H. Foster, New York ; 3d Vice President—J. Tucker, Boston ; Corresponding and Recording Secretary—C. O. Cone, Baltimore : Treasurer—E. J. Dunning, New York ; Librarian—D. R. Parmly, New York.

Publishing, Executive and Examining Committees, re-elected.

Drs. Cone, Lord, Hullihen, Townsend, Dunning and Bridges, were appointed to prepare essays, to be read at the next annual meeting of the society.

The society voted thanks to Messrs. Jones, White & McCurdy, for their enterprise and liberality, in so promptly and handsomely reporting the doings of the previous meeting at Philadelphia.

AFTERNOON SESSION.

Dr. C. O. Cone, of Baltimore, read a paper before the society upon the subject of a new method of treating exposed dental nerves.

The subject was first brought to the attention of Dr. Cone, by a communication from Dr. Hullihen, of Wheeling, Va., who first discovered, and practised the operation some three years ago. At the instance of Dr. H., Dr. Cone had been experimenting for some time past, and minutely detailed his operations and their results to the society in the paper above referred to. And also laid before the society a paper from Dr. Hullihen, relating to the same subject. This subject elicited many questions, and considerable discussion, and the operation by many is regarded as one of the most important steps to which the profession has advanced, in the practice of Dental Surgery ; and the commencement of a new era in its history. The operation consists, in drilling into the nerve cavity about a line above the margin of the alveoli, through the gum and alveoli—*without separating the nerve*, and wounding it as lightly as possible. The drill should be *spear-shaped*—with one cutting edge longer than the other—shaft smaller than the drill head, and driven with a bow, with slack string, and the size of the drill to be the same as the size of the nerve, at the point where the fang is perforated.

The operation is to be performed where the nerve is exposed, in excavating the crown, so as to produce pain and pressure, or, in that class of operations, where the nerve is usually destroyed with arsenic. The results of this operation are said to be the preservation of the vitality of the nerve, instead of its destruction, as in cases where arsenic

is used. While at the same time, the operator is enabled to fill the cavity in the crown, without pain or inconvenience.

Much care is requisite for the success of this operation, and the drill cuttings must be carefully removed from the fang, where the hole is drilled.

This opening, it is said, will fill up with new ossific matter, and the tooth become as sound and healthy as if it had never been wounded at all.

Such, in brief, is our very imperfect description of an operation which opens a new field for experiment, with a fair prospect of success. We expect by no means to do justice to the very able and elaborate report upon this subject, and presume to give our readers merely a general idea of the operation. We have been enabled, through the kindness of Dr. Cone in furnishing us the paper in season for this issue, to lay it entire before our readers.

Dr. J. D. White asked the question, whether the object of puncturing a tooth, was to allow the escape of extravasated blood, while at the same time, it admitted a sufficient amount of nerve in the canal, to maintain the vitality of the crown? Dr. Hullihen was not prepared to decide the question, but made some suggestions as to the probable physiology of the operation.

After considerable miscellaneous intercourse between members, the Society adjourned to meet at West Point, the second Tuesday in August next, at 10 o'clock, A. M.

For the Dental News Letter,

ON THE SPRINGING OF PLATES IN SOLDERING.

MESSRS. EDITORS:—For several years past I have been considerably engaged in investigating and experimenting in the different branches of dental science, and particularly in the mechanical branches, knowing that part would ultimately, as a general thing, be the most difficult to acquire and bring to perfection. I have watched the different ideas and opinions of dentists with some care—myself widely differing with some, and finding some closely to approximate to my own—and especially in some of the articles which have lately appeared in the Dental News Letter, on the subject of springing of gold plates in full upper sets of teeth. Dr. Buckingham, after discussing the matter ably, comes to the following conclusion:—"But I am not able, at present, to give any plan that will *effectually* overcome the difficulty." And again, he says, "my plates spring some, but I generally

manage to get them back so as to fit *tolerably* well." Those conclusions fully agree with my experience, founded on a regular mechanical knowledge, and an active practice of fifteen years. There appeared two articles in the subsequent number of the Dental News Letter which attempts to make the difficulty of plates springing by soldering easily to be overcome, to which I widely differ.

To find out the real cause of the springing of the plate, in this matter, in my opinion, is the most essential—for I have no doubt, it has to a great degree, baffled the skill and genius of nearly every dentist. Dr. Buckingham reasons well in the matter, and deserves credit for giving such honest and correct conclusions. Though I must, in some respects, differ with him as regards the real cause of the change which takes place in a gold plate when teeth are soldered to it. According to his opinions, there are two principal causes—the contracting principle of the plaster, and the resistance of the teeth in not allowing the plate to return to its natural position. True, the plaster contracts, but it is a detached body, not incorporated with the teeth or plate. If it exerted any force on the plate, it could only bend it, and not spring it; place the teeth tight against the arch of the plate, the edges approximating tightly; according to the true principles of expansion and contraction, (which is always the same and in the same line) they ought only to come back there again, and leave the plate and teeth perfect, and no doubt always would, *provided* no *extra* body of metal is added to the plate.

I will now try, as briefly as possible, to explain what I conceive to be the true cause of our troubles in the case. We put upon the plate, at fourteen different places, gold solder, and heat it to the highest degree of expansion, and when so expanded, it incorporates with the the plate and then contracts according to the amount of expansion. The plate has now formed upon it a circle of considerable thickness of *extra* metal, which of course, produces an *extra* amount of contraction. This contraction draws the plate together, makes the arch of the plate smaller, brings the ends of the plate together, throws up the plate in the palatine arch, and, of course, does not fit. It will generally be found after soldering, that the plate lays too close in the region of the canine and bicuspid teeth, and throws off about the central incisors; all those changes are evidently produced by a contraction of the plate in the inner circle, and caused by the solder, which acts upon the same principle as a contracting band. It is frequently the case that no change in the plate is perceptible when first taken out of the plaster, but on removing the fire-coat, borax, &c., &c., or by breaking a front tooth out, which relieves the plate from the resisting force, then the

plate springs, and not unfrequently a set may be fitted to the jaws to answer well, and in a short time may be sprung—all of which fully illustrates that there is, in every set, a contracting force, and when the resisting force is weaker than it, the plate will spring. I contend that a contraction must take place when solder is put on a plate, and that the immediate or subsequent springing of the plate is, and must be, the result. Mechanism is governed by fixed and unalterable laws and principles, like all material substances of the universe. If my position is at all correct, it certainly is not a very easy matter to overcome the difficulty. It is my opinion, that for atmospheric plates we ought to abandon gold solder and substitute some other mode of fastening the teeth; if that could be done, we would add much to our convenience and interest, and more to the comfort and satisfaction of our patients.

Believing that a full description of this (to dentists) important subject, in all its particulars, would be more lengthy than desired for the Dental News Letter, I have communicated more fully with a worthy member of the profession, whose ideas and opinions I highly appreciate.

Yours, truly,

J. P. SHOLL.

Bethlehem, Pa.

For the Dental News Letter.

IMPROVED FILE CARRIER.

MESSRS. JONES, WHITE & McCURDY :—Will you allow me to occupy a small portion of your valuable Dental News Letter, with a drawing and brief description of an improvement I have made on the old-fashioned file carrier?



1-1. Two thumb-screws, by which the file is held. 2. Double shaft, which embraces the file both sides along the edge. 3. Shaft of instrument. 4. Handle of instrument.

Those who have used it consider it far superior to the old kind, inasmuch as it embraces the file the whole length, thereby rendering it capable of sustaining any amount of pressure without breaking.

Another advantage it has is, that the file can be regulated so as to file to any given point, and no farther; it can be used for upper and lower back teeth, and front teeth, also.

Yours, respectfully,

HORATIO KERN,

Surgical and Dental Instrument Maker,

No. 293 Market street, Philadelphia.

For the Dental News Letter.

ON SPRINGING OF PLATES.

DEAR SIRs:—I have seen a number of plans published in your journal, to prevent plates from warping. I will simply give you my plan for the prevention of such accidents, and whoever is willing to adopt the practice, I am certain cannot fail of success in a single instance. In the first case a plate could never warp, were it not for the expansion of the sand and plaster on heating, and the consequent shrinkage on cooling. To obviate this as far as practicable, is all that I hold to be necessary to completely prevent the warping of plates. The following is my practice, which never yet has failed:

After the plate is properly struck up, and the teeth arranged for encasing in the sand and plaster, I lay the plate and teeth on a table, (the cutting edges of the teeth up.) I then form a net-work of flower maker's wire, which encloses the entire case, approaching to within a quarter of an inch on all sides of the outer surfaces of the teeth, and of width corresponding to the height of the case. I employ about five wires, encircling the case in a parallel manner, with upright wires sufficient to support them; then pour your plaster and sand around the teeth and wires to the desirable thickness; and when dry, solder in any manner you choose, and your plate will come out as perfect as you may wish.

Yours, truly,

GEO. F. R. BAKER.

Callicoon Depot, N. Y.

For the Dental News Letter.

ON MAKING SOLDER.

MESSRS. EDITORS:—In your last number I gave a recipe for making solder 22 carats fine, for gold plate of the same fineness, by alloying pure gold with equal parts of *zinc* and *tin*. As it has been generally received as "the law," in our profession, that solder must necessarily be a few carats *inferior* in standard to the plate on which it is to be employed, and as some may question whether tin and zinc will combine so as to work well with gold, or rather whether gold will "work" at all in companionship with these "base" metals, I have thought it might not be out of place to send you a sample, that you may judge for yourselves. It consists of three teeth mounted upon a small thin plate, with clasps attached, all united by the above solder. The plate is 21 carats fine, being pure gold alloyed with equal parts of silver, copper and platinum. The color is perhaps, all that could be desired, as well as the elasticity, &c. Regarding platinum as equal to gold, the plate may pass for 22 carats fine. The solder is 22 carats, made by alloying

pure gold, (of the same piece used for the plate,) with equal parts of zinc and tin. It will fuse on gold of an inferior standard, 20 carats certainly, and I think likely as low as 18 or 19. The single tooth I send, that you may try its tenacity. The plate of this is about 20 carats, alloyed with silver and copper.

The solder does not flow quite so freely and evenly as could be wished, but it is as soft as the plate, and can be readily trimmed down with a scraper—a different proportion might improve it in this particular. By continuing the heat, the zinc and tin rise to the surface and are burned off in a great measure, thus leaving the pieces united by almost pure gold.

Some years ago, (it was in 1846,) I made a very fine solder by the use of tin alone, which, although objectionable in some respects, I have frequently found valuable in others. Rolled in strips it is not nearly so brittle as the above—indeed hardly more so than the gold itself; but it melts harder and does not flow well, except under a heat which would jeopardize the plate if employed in soldering sets of teeth. It fuses *in situ*, as it were, clinging however to the plate with great tenacity. I employed it in two or three cases, in parts of sets without accident, but have chiefly found it useful in uniting strips for clasps, or in thickening the edges of my plate where I wished to prevent the stiffness that would have been occasioned by ordinary solder, or where the quantity required would have rendered the latter objectionable. I have no doubt that some of the other base metals might be found serviceable. The subject certainly seems worthy of experimental inquiry, on the part of the dental profession.

If the use of 15 or 16 carat gold is objectionable for *plate*, it should also be so for *solder*. In full sets of teeth as much solder is sometimes used as might suffice to make some of the thin, narrow plates which we frequently find in parts of sets. The salts of copper liable to be formed in the mouth from this metal, as contained in the ordinary solder, might certainly act perniciously in cases where the compounds, produced under similar conditions, from a like proportion of tin or zinc, would be comparatively innocuous; but apart from this, the small proportion required of the latter metals for the above purpose, must obviate all objection on this score.

While writing, I will here take the opportunity of correcting an erroneous impression that may have been conveyed by a general remark in my last, wherein I spoke of having frequently made inquiry of dentists, whom I supposed likely to be informed on the subject, in regard to the use of platinum, without obtaining anything satisfactory,

&c. This appears to have been regarded by some, as intended to apply to the profession in this city, thereby conveying the impression abroad that an illiberal spirit existed in our midst. I did not certainly intend this. The members of the profession in this place are not only skilful dentists, but I have ever found them liberal minded and free to communicate their "*modus operandi*" in the art. Taking for granted that we all used platinum in nearly the same manner and proportion in alloying plate, and knowing that the plate thus prepared by all, was liable to the objection (in regard to color,) which I sought to remedy, I had not recently conversed with any upon the subject. In alloying gold with platinum, Dr. Gunn and Dr. Ross, have, like myself, been using the latter, in the form of filings. Drs. Hamlin & Morgan, inform me that they have, for some time past, used it in the form of leaf or thin strips. The proportions vary, according to the elasticity required, from say, 2 to 5 grains the dwt. I have tried plate with one-third platinum, but this quantity does not appear to give any greater elasticity than a smaller proportion. An alloy of equal parts of copper, silver and platinum, possesses, perhaps, all the advantages of that which I proposed in your last number.

Yours, &c., B. Wood.

Nashville, September 16, 1852.

Amputation of a Healthy Upper-jaw, as a preliminary step to the Removal of a Fibro-plastic Tumour of the Pharynx.—M. Maisonneuve presented to the Academy of Medicine of Paris, at the end of the meeting of the 20th of April, 1852, a patient upon whom he had performed the amputation of a healthy superior maxilla, in order to render practicable the extirpation of a fibro-plastic tumour, situated in the pharynx, with polypoid extensions into the nasal fossæ, the frontal sinuses, the temporal fossa, the zygomatic space, and the cheek. The operation was performed in such a manner that the incisions carried along the mesial line, and the commissure of the lips, did not divide any motor nerve. The movements of the face are thus perfectly preserved and no deformity is visible. When the wound was quite healed up, M. Maisonneuve had an apparatus constructed to which the teeth of the patient were adapted; this apparatus comes, therefore, to answer the purpose of an obturator and a set of teeth. Mastication and articulation are performed as well as in the normal state, thanks to this mechanical contrivance, and the loss which this patient has undergone is thoroughly concealed.

THE DENTAL NEWS LETTER.

OCTOBER, 1852.

☞ With this number commences the sixth volume of the "Dental News Letter." We have now been *five years* in existence, and gradually increasing in size from our birth—a result not at all peculiar in living and healthy bodies.

For our future course in conducting the News Letter, we refer to the previous volumes, and especially to a few remarks made in our previous issue, and to say any thing more in that connection now, would, we think be superfluous.

We can speak with some pride of the contents of the present number, every article in which may be read with much interest and profit, and to all of which we invite the reader's attention.

We may add that this number is printed from a new fount of type much smaller than that we previously used, and with which we are enabled to add considerably to the amount of matter in each number.

A Letter to Dr. Drake, on the Cause of Premature Decay in Deciduous Teeth, etc. By SCRUTATOR.—This is a small pamphlet which reviews at some length, the discussions held on the subject by the Miss. Valley Association of Dental Surgeons. The author is quite caustic occasionally, on the individual opinions advanced by some of the members of the above Society, and disagrees with them all, in their conclusions. We would be much pleased to see this discussion continued, as some new facts may be elicited.

Drs. Hunter & Allen.—In this number will be found an article from Dr. Hunter, in which he gives a full description of his new method of mounting teeth with the materials employed, and their preparation; also a continuance of the discussion between Dr. Allen and himself. Our columns are open, of course, to Dr. Allen's reply.

Dr. White's paper, read before the Am. Soc. Dental Surgeons, we had expected to publish in this number, but in consequence of his inability, for want of time, to prepare it in season for publication in this issue, we are compelled to defer it till our next.

Syracuse College.—We would refer the reader to the advertisement of this flourishing school, which will be found on cover.

Practical Hints on the Teeth. By W. E. IDE, M. D., Dentist.—This is a neat little book of some 64 pages, designed especially for the non-professional reader. It is a sensible book, plainly written, and well gotten up—creditable to both author and printer. We hope it may have a large circulation among heads of families, where it must do good service in imparting much information on a subject in which they are deeply interested.

We can endorse the sentiment contained in the following, which we copy from the introduction, as giving each branch of Dentistry its proper importance; and while upon this subject, we would add, we do not like the disposition which is generally manifested by writers on the subject, to merge *all* that is good and important in Dentistry into the single operation of plugging teeth; there are, we think, abilities and requirements demanded in the mechanical department as well, and honor and position can as justly attach, and as properly belong to the finished and judicious mechanical Dentist, as to the one who plugs only. But to the extract:

“Dental Surgery is partly a science and partly an art. It is a science, inasmuch as it involves a knowledge of the action of vital organs in health and disease, and of medicinal remedies. It is an art, inasmuch as it requires the most delicate manual tact and accurate adaptation of mechanical means to remedy the results of disease. It is a mistake that prevails too extensively, that the *mere mechanic* or *mere physician* can make a safe and successful dental practitioner. The organs involved are endowed with vitality, and subject to the same laws which govern the other parts, of which “we are fearfully and wonderfully made.” As well might the *mere mechanic* calculate the quadrature of a circle, as treat successfully the derangements of this vital machinery, or the *mere mathematician* make a steam engine, as the *mere physician* adjust with nice exactitude the artificial substitute for living organs.”

Thirteenth Annual Announcement of the Baltimore College of Dental Surgery.—This institution, as will be noticed, is now in its thirteenth year, a proof surely of its success, of which it is well deserving. See advertisement on cover.

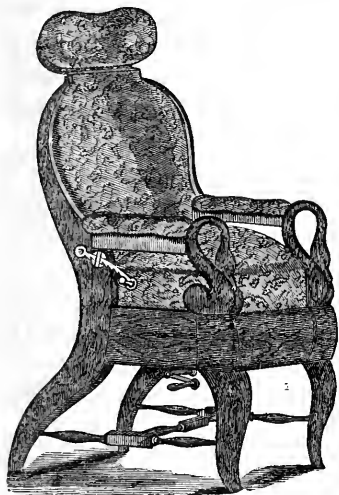
Philadelphia College of Dental Surgery.—We would again call attention to the advertisement, (which will be found on cover,) of this school. We understand a large class is anticipated, quite a number having already matriculated.

BUSINESS NOTICES.

Hunter's Material.—We have been instructed by Dr. Hunter in person, as to the manner, and materials used, in preparing his compound for forming a silicious base, with a view of supplying the profession, and we are now prepared to fill all orders from those who do not wish to prepare it for themselves; also the teeth made expressly for him.

Allen's Material.—We have this material also for sale; likewise teeth made expressly for his method of setting them. We would call attention to the advertisement of Dr. Allen, which will be found on cover.

DENTAL CHAIRS.



Having many inquiries in reference to dental chairs, we give the above cut, of the kind we get up, and have for sale. They are made of mahogany or black walnut, as may be desired, covered with scarlet figured plush. The seat being made to raise by a crank extending out from under the chair, as may be seen; thus, any elevation of the seat may be obtained. The back falls by means of two quadrants, both being controlled by moving one; thus obviating the necessity of going behind the chair to let the back down. The head-piece raises or falls by means of a quadrant, and a part of the head-piece slides upwards and downwards, and *horizontally*; the latter movement enabling the operator to bring the head of the patient close to his breast, by which he may operate without stooping. They are very strong and handsome, and combine all that is requisite in a dental chair.

We also make two others a little different. One with the back permanent, but all the other movements as above described; another and cheaper kind, with back and seat permanent, but moveable head-piece.

Almost any taste may be suited.

JONES, WHITE & McCURDY.

Eighth Annual Announcement of the Ohio College of Dental Surgery.—This institution is, we are informed, progressing finely, with fair prospects for increased usefulness.

Decency of a Post Master.—We have just had a paper returned from the Post Office at Waynesboro, North Carolina, with the following written upon its margin: “*Dont send your cussed paper here again, Dr. D. G. Ward is dead, insolvent, and run away. Dont be a fool all your life. What do you think of the Rochester rappings?*”

As this is the first occurrence of the kind, we feel disposed to bring the matter before the department at Washington, and ascertain if Post-masters are allowed to insult publishers with impunity. We shall see.

OUR DENTAL COLLEGES.

We have received the annual announcements of four Dental Colleges in the United States, and the only institutions of the kind with which we are acquainted in the world. Three of these have previously been in operation, viz: The Baltimore, Ohio, and New York Dental Colleges, located at Baltimore, Cincinnati, and Syracuse, respectively. And one to commence operations this fall, to wit: the Pennsylvania College of Dental Surgery, located at Philadelphia.

Each of these several schools, present a bill of fare, which would have made our heart dance for joy, if it could have been presented to us at the commencement of our professional career, and which cannot fail to be most grateful to the ardent desires of the young men, who propose to make the practice of Dental Surgery the business of their lives. The several Professorships of these Colleges are mostly filled by men of decided eminence in their several departments, and generally well known to the profession, and community, as every way qualified to meet their just expectations.

And the curriculum of Dental studies embraced in the several departments of these schools is so liberal, as if carried out, silences forever the objection, that the “so called Dental Colleges” are “altogether inadequate to the wants of the profession.”

We cannot but feel a just pride, that we have *four Dental Colleges* in this country, now in full blast, with talent, ambition, and liberality enough among the several corps of professors, to place the question of the advantages of Dental Collegiate instruction forever at rest.

And we are heartily glad that the profession in this country have taken the initiative in this great movement, which is *surely* destined to elevate the meritorious and worthy among them, and reflect lasting credit and honor upon those whose zeal and enterprise the public are indebted for these advantages. And we regard the honorable rivalry between them, as the surest pledge that can be given, of their ultimate success and permanent usefulness.—NORWALK ED.—*Dental Recorder.*

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No. 2.

LINTOTT ON THE TEETH.

(Concluded.)

CHAPTER VII.

EXTRACTION.

The removal of a decaying tooth should never be determined on, until every effort has been made to fill the cavity, and retain its use; unless, by its presence, it absolutely prevents the curative treatment of an adjoining tooth, or unless an abscess or tumor be evidently forming, and resist all other means of cure. The break in the arch of the teeth, consequent on the loss of one, weakens the whole set. Those of the jaw, whence the extraction has been made, lose the support afforded by *uniform lateral pressure*, as, in the endeavor made by nature to fill up the gap, the remainder become separated from each other, and quickly assume a straggling and unsightly appearance.

The teeth of the opposite jaw, affected by the loss of their antagonists, will generally rise from their sockets, and become loose; mastication will be impeded, an undue degree of duty will be imposed on those which remain firm, and an untimely disarrangement of the entire apparatus will ensue.

It is an extraordinary circumstance that an operation, which every one justly holds in so much dread, and which really is in itself a very important one, involving a forcible disarticulation of most firmly united bones, should be entrusted to individuals almost or entirely ignorant of the structures to which they are about to offer such serious violence. When it is considered that the ordinarily constructed key, which is so universally employed by such operators, is in their hands a most dangerous instrument;—(for no one can apply it properly, unless he have previously acquired an intimate anatomical knowledge of the articulation of the teeth;—) that the force brought to bear upon the parts is infinitely greater than should suffice to overcome the resistance of the tooth, *if the attempted extraction be one that ought to be persevered in*; and that

if the "*fulcrum*" be misplaced by a few lines only, this enormous force is exercised upon the bony structure of the jaw, as well as upon the tooth;—that the least unfortunate result to be expected is the crushing and breaking of the crown of the tooth, with the painful laceration and farther exposure of the already inflamed pulp; and that probably extensive fracture of the alveolar structure may result, and may be attended by necrosis of the bone, involving the subsequent loss of many teeth; when all these liabilities are taken into account, it seems most strange that this wholesale mode of exterminating the teeth should continue to meet with encouragement.

Many improvements have been recently effected in the construction of the "*extracting key*;" yet, in my opinion, its use is still open to many well-grounded objections. That eminent surgeon, Professor Liston, says, in speaking of "*epulis*," a dangerous kind of tumor,—"*It seems to originate from disease of the teeth, from crowding and irregular distribution of these bodies, from injury, accidental or inflicted, in ill-directed operations for the removal of teeth, the bruising of the gum, for instance, by the bolster of the old key instrument or pelican.*"

Well-constructed pairs of forceps, adapted to the peculiar conformation of each tooth of the series, together with two or three differently shaped elevators, will be found fully sufficient to meet all ordinary cases. These are the most effective, as well as the safest instruments that can be employed, and I am fully persuaded that, in skilful hands, an extraction by forceps is attended by much less severe pain than follows the application of the key.

Exostosed and Anchylosed Teeth.—There are cases of frequent occurrence, in which by an unhealthy deposit of the cementum, probably superinduced by inflammatory action, the fangs of the teeth become considerably enlarged, presenting numerous bony prominences, closely resembling true "*exostosis*." In such cases, should extraction be resorted to, in order to relieve the pain occasioned by the pressure of the enlarging fangs, very great difficulty will be encountered, and imminent risk of fracturing the alveolar process will be incurred, if the attempt be persisted in. Should the inflammation of the periosteal membrane have terminated in *anchylosis* of the teeth and socket, the attempt at extraction would necessarily occasion fracture of the jaw-bone. The use of the key, in such cases as these, would most likely be followed by some such lamentable result, especially in the hands of an uneducated practitioner, who, meeting with unexpected resistance, and ignorant of the true cause, would blindly apply the enormous degree of force of which the instrument is capable. The operator possessing a

proper knowledge of anatomy, and practised in the use of the forceps, would, on the contrary, be enabled at once to detect the altered condition of the fangs, and would either resort to a different process for effecting the removal of the tooth, if imperatively required, or would desist from the attempt.

It is the custom of some practitioners to dispense with the operation of *lancing the gum*, preparatory to the adjustment of the instrument for extraction. It certainly is not indispensably necessary to the completion of the operation. A tooth may be torn out of the jaw, and may bring a strip of the gum with it, and inch or more in length. I have seen it done. Should I unfortunately find myself under the disagreeable necessity of losing a tooth, I would insist on having the gum well freed from its attachment to the neck of the tooth, by the operator, knowing that it would facilitate the proper application of the instrument, and that the gum, so wounded, would heal far more expeditiously than if lacerated and bruised.

The only cases wherein the lancing of the gum is not requisite, are those in which, either through loss of vitality of the tooth, or by great absorption of the parts and denudation of the neck, the connexion between the gum and the tooth has already ceased to exist.

CHAPTER VIII.

RESTORATION OF THE TEETH.

I have endeavored in the preceding pages, to point out the condition of the teeth, and of the structures in intimate connexion with them, which ultimately leads to their destruction: the evils resulting from their loss, and the mode of treatment which, properly followed, may be the means of retaining them through life, and escaping the necessity of becoming dependent on art for a power so important, so indispensably necessary to the maintenance of health, as proper mastication.

Should the permanence of this power become at any period endangered by the loss of one or more teeth, no fear of incurring ridicule, or of being subjected to the accusation of vanity, should be allowed to have weight, when placed in juxtaposition with the personal comfort which is derivable from the skilful adaptation of artificial substitutes to the vacant spaces. An important question for consideration is the extent of loss which may be submitted to, before recourse to the assistance of art becomes imperatively necessary, in order to secure the masticatory apparatus against further inroads.

My own opinion, deduced from practical observation, is, that the only unimportant loss is that of the wise teeth of either jaw, and that so soon as the loss of any other tooth occurs, the space thus caused should be at once filled up, so that *continuity of mutual lateral support and equality of antagonist pressure*, shall remain uninterrupted. The manner in which the whole set is affected by the loss of a single tooth, has been explained in the preceding chapter on extraction. There is, however, such a general feeling of repugnance to the idea of wearing false teeth, and so great a mistrust of their *efficacy*, arising from the unskilful, clumsy and defective workmanship, and employment of improper material in the construction of the trash now so extensively manufactured, and foisted upon the public by means of ostentatious advertisements, that it would be a vain and futile attempt, were I to endeavor to urge so close a degree of attention to the maintenance of integrity in the apparatus; although I am convinced that the result of such solicitude would well repay the patient.

Conscious that an unfavorable opinion regarding artificial remedies has thus been created, although, when properly applied, they give rise to such true comfort, and are wholly painless and perfectly efficient, I am compelled to limit the period when the rejection of such assistance can no longer be persisted in, to that, when the collision of the teeth by loss of *antagonistic molars* becomes transferred to the *anterior teeth*. The divergence of the roots of the grinding teeth enables them to withstand the continuous action of the jaws in masticating, but no sooner is this function imposed on the canines and incisors, depending for strength on one rounded fang each, and weakened by the loss of the lateral support which the proper grinding teeth did formerly afford, than they give way, become loose and fall out.

In some cases, where the collision takes place unequally, or is but slightly participated in by the remains of the molars, the substance of the anterior teeth will be worn down, and the dental cavity itself would in due course be exposed, were it not for the bountiful interference of nature, by whose agency a deposit of new material, which I have shown to be analogous to the cementum, takes place from the investing membrane of the pulp, in proportion to the external abrasion of the ivory. This deposit keeps pace with the wearing down of the tooth, the pulp receding before it, and ultimately becoming completely atrophied; so that, notwithstanding this intervention of new substance, the loss of the teeth is no less certain, *unless the collision be transferred back to artificial grinders*, so adjusted as to prevent farther actual contact of the front teeth.

I have already alluded to the immense importance of a due mastication of the food, preparatory to its perfect digestion, which must be dependent on the efficiency of the grinding apparatus; and I think nothing farther need be urged in favor of the timely adoption of artificial teeth, by those who have the misfortune to lose their own. It remains only to direct attention to the consideration of APPEARANCE as affected by the absence of the teeth. Of the front teeth I will say nothing more, than that their loss impedes very materially the articulation of sounds; the detrimental effect of a gap in the front of the mouth is too apparent to require comment; but the *change of physiognomy* consequent on the sinking in of the cheeks, and the approach of the chin towards the nose, permitted by the absence of the molar teeth, is seldom attributed to the right cause. The object of repairing the teeth is, however, not to be confined to mere appearance; the legitimate aim is so to preserve the remaining teeth, that the power of mastication, and with it health, comfort and energy, both of mind and body, may be secured or restored.

Modes of restoring the Teeth.—The first mechanical operation of this nature which we may suppose to become requisite will be the restoration of a single tooth. As regards the canines and incisors, the crown only being lost, and the root remaining firm, one or all of them may be replaced by “GRAFTING,” or, as it is more commonly called, “*pivoting*.” The root of the lost tooth is cut down smoothly, rather below the edge of the surrounding gum:—the constricted portion of the dental cavity occupying the centre of the root is perforated nearly to its base:—the crown of a natural or of an artificial tooth, matching the remaining teeth in form and color, is accurately fitted on to the root, and retained in its position by a piece of *gold* wire screwed firmly into the crown, and jointed closely into the perforated portion of the dental cavity. If absorption of the pulp have accompanied the destruction of the crown of the tooth, (which generally happens,) it will be painless or, at the worst, followed only by a slight irritation and swelling of the neighboring soft parts, which will speedily subside. If the pulp still remain endued with full vitality, (a rare occurrence unless the tooth have been forcibly broken off,) it must be removed, and some little pain will ensue. The destruction of the pulp is easily effected by a turn of the perforator. It is the operation of less than a minute, not, as is generally supposed, a lengthened endurance of severe pain from the application of heated wires, &c., &c. Such may have been, and I believe has been, the practice, but all such barbarous proceedings have or should have disappeared with the advance of science. This opera-

tion of "GRAFTING" is certainly the pride of the art. The dreadful exposure of "*wearing a false tooth*" rests with the wearer, for even a close examination of the mouth, inside as well as outside, will not bring the fact to light, *if it have been effected properly*. The apposition of the two surfaces of the false and true, as well as that of the wire to the perforation of the fang, should be so close, that all moisture is perfectly excluded. The operation being thus skilfully performed, and *collision with antagonistic teeth carefully guarded against*, with fair use, and under favorable circumstances, the grafted tooth will endure for many years. I am in the habit of introducing the camphorated solution of mastic, already mentioned, into the perforation of the fang, preparatory to the permanent fixing of the tooth, and I conceive that the durability of the fang is much assisted by its presence.

The efficient restoration of a tooth in this manner, is an operation that tests the skill of the dentist, perhaps, more surely than any other which he may be called upon to perform, and consequently it is seldom attempted but by those who feel themselves competent to its perfection. It is, however, the only proper mode of restoring a single-fanged tooth in the first instance. It occupies no more space, and depends nearly upon the same means of support as did the natural tooth which preceded it.

Other modes there are of restoring a single tooth, which I am about to describe, in reference to the repair of more extensive losses; but even when well executed they are objectionable in restoring front teeth, particularly in the fact, that the bulk of the foreign substance thus introduced into the mouth, must of necessity exceed that of the lost tooth. The ordinary mode adopted by the inferior class of dentists is a most reprehensible practice. Neither utility nor improvement of appearance attend its introduction, and the only party benefitted is the operator, for whom it quickly procures a second and third opportunity for profitable employment, by wearing into and dragging out the teeth to which such an ill-planned piece must be successively attached.

When the grinding teeth, as well as some or all of the front teeth, have been lost, they may be restored either by ivory only, or by a combination of gold, ivory and natural or artificial teeth.

In replacing lost molars, the dentist who undertakes at the same time to restore the power of masticating, and to preserve the remaining teeth, must be careful so to regulate the height of artificial masticators, that they shall by their contact prevent the positive collision of the front teeth. This must be effected, or the result will be neither bene-

ficial to the patient nor creditable to the operator. If no molar teeth remain, the case is simple. The ivory blocks, carved so as to represent these teeth, must be left of sufficient height in the first instance; and they will wear down with use, and allow the remaining front teeth again to come into undue contact; the grinding surface must be restored by riveting on a fresh face of ivory. If, however, one or more molars yet remain in the jaws, which from unfair use have been worn down beyond their proper level, whether they be loose or firm, whether the piece be constructed of ivory or gold, such teeth must be *capped*, and thus restored to the right height.

The most comfortable mode of restoring the teeth, especially if there be much absorption of the gums, is unquestionably the employment of a block of the ivory from the tusk of the hippopotamus: out of this is to be carved a piece, which being modelled to a cast of the mouth, shall fit to the gum so accurately, that the forces of *capillary attraction* and *atmospheric pressure* shall be brought into play, and shall suffice to secure the artificial masticators firmly in their right position. These principles are equally applicable to a single tooth, or any number of teeth, as to a whole set. The teeth may either be carved out of the same piece of ivory which represents the gums; or natural or artificial teeth may be imbedded into the ivory gums, which may be stained so as to imitate the natural gum in color. The congeniality of ivory to the structures to which it thus comes in contact, the superior facility with which it may be fitted to the remaining teeth, and be made to support them, to shield tender and decaying stumps, to cover over and increase the height of worn down molars, are all so many reasons in favor of a preference of this mode to the use of the metallic plate. There are, however, serious obstacles in the way of the general use of ivory, the most important of which are, its want of durability and the consequent increased expense attendant on the wear of artificial teeth so constructed. When ivory is constantly exposed to the chemical action of the saliva, it undergoes a change and is decomposed very rapidly, so that the edges of the piece where it is sloped off to the surface of the gums and soft parts of the mouth, and the thin portions passing round and behind the remaining teeth, become so weakened in the course of a year or two, that the apparatus will probably in that time require renewal. The employment of ivory solely, is more expensive in the outset than a gold plate, in consequence of the higher degree of workmanship, and greater consumption of time necessary to perfect a piece of this description; and this expense will be too frequently re-incurred to permit its adoption by any but the wealthy. Another objection to ivory, is the greater bulk of the piece necessary

to secure a sufficient degree of strength, which, in some cases, where little or no absorption of the gums has occurred, would impede utterance; and a third disadvantage is the disagreeable odor which the ivory will contract after a short period, if it be neglected. This latter objection is equally applicable to all artificial pieces, in the fabrication of which ivory is employed; but it may easily be avoided by carefully cleansing the piece each night, and allowing it to remain in camphorated spirits until the morning.

The mode of restoring the teeth most generally in use, is the adaptation to the gums of a plate of gold of a high degree of purity, to which the teeth, (and artificial gums, if necessary,) are fastened by means of gold pins, soldered into the plate. A correct model of the gums, &c., having been obtained in wax, is transferred to plaster of Paris, and thence to metal. By means of this metallic model the plate is stamped up, and if the primary mould have been correctly taken, and the work well executed, the plate will fit accurately to all the inequalities of the surface of the gums; and the pressure will thus be evenly distributed over so large a space that it will scarcely be felt, and the wearer will soon become almost unconscious of its presence. When there are two or three firm teeth remaining, they will afford sufficient support to retain the piece firmly in its place, without having recourse to the assistance of springs.

The clasps by which a piece is to be steadied, should be as broad as the teeth will admit of at the back, and narrowed to a point towards the front. The width of a well-fitted clasp will so much equalize the pressure of the teeth against the firm teeth, that no injury will follow its constant wear; whereas, if a narrow band or wire be used, it will inevitably wear away the enamel, and cut into and destroy the neck of the tooth around which it passes.

Should any teeth be present, which, although loosened, admit of a probability of their being retained, the gold plate must be carried well up behind them, so as to form a kind of collar for their support.

In reference to the employment of this mode, it must be clearly understood that the artificial piece is not to be *hung on the remaining teeth*; that it is not to derive its support from them, but it is rather to afford them an additional degree of strength, by filling up the spaces between them, and by participating equally with them in the pressure of mastication, taking it as much as possible off the loosened teeth. In cases where it is requisite to increase the height of molar teeth, this will be easily effected by carrying the gold plate over the surface of the shortened tooth: and if this be insufficient, the plate may be doubled

over the grinding surface, or may have a piece of ivory rivetted on to it. If such teeth be firm, the capping may be made to fit so closely as to spring in towards the neck of each tooth, and this will afford a most advantageous security to the whole piece. If, on the contrary, the remaining molars be loose, the capping must be made to discharge the office of a shield towards them, and, thus relieved from pressure, they will probably regain a greater degree of firmness. If they be mere stumps, and still firm, they may be cut down to a plane with the surface of the gum; if loose, and the patient object to their removal, the plate may be carried over them in such a manner as to protect without pressing on them, and the height must be made up above the stump by riveting on an ivory masticator, as in ordinary circumstances.

When absorption of the gum, &c., has taken place to any extent, and the nature of the case or the desire of the patient, demand the employment of a gold plate, the lost substance of the gum must be restored by means of ivory, carried so as to fit on to the gold plate as accurately as if the under surface of the ivory were intended to come in contact with the gum, without the intervention of the plate. The teeth are to be imbedded into the ivory, which, as before said, may be so colored as to exactly resemble the natural gums.

In restoring the front teeth only, where the fangs have been lost, without much consequent absorption, I incline strongly to recommend a gold plate, especially for the upper jaw, as it combines strength with neatness, and the occupation of so little space, that articulation remains unimpeded. The plate should, if permitted, be carried round as far as the first or second bicuspid on each side.

The practice of assisting the fixing of a piece by means of *ligatures* passed around firm teeth is highly objectionable. The patient to whom such a mode is proposed, will be justified in concluding that he is not in the most skilful hands, for no well-planned and well-constructed piece will need such aid. Much is said about the *fixing of artificial teeth, without extracting stumps or giving any pain.*

The removal of firm stumps I have already objected to generally, and so long as they remain firm, they are of the greatest assistance to the security of the artificial piece, keeping up the form and substance of the gum; but if loose, their removal should be unhesitatingly recommended, on the ground that, by their presence they will keep the gum in a constant state of irritation, and that as they become more loose, and are thrown up towards the surface, their longer retention will become impossible, and their loss will then be followed by absorption and change of shape of the gums, so that the piece, no longer fitting accurately, becomes imperfect.

When the patient assents to the removal of such useless annoyances from the gums, from ten days to a fortnight, or even five or six weeks, according to the nature of the case, should be allowed to elapse before the model of the gums be taken, in order that all change of shape likely to ensue may have taken place; and in the meantime the health of the system generally should be closely attended to, and the hardening of the gums assisted by astringent washes. The permanence and comfort of the artificial piece depends so materially upon this preparatory treatment of the gums, that the very little suffering attendant on the extraction of loose stumps, which the patient himself may remove with his finger and thumb, should never be permitted to influence a decision against such treatment. The piece may certainly be adjusted without their removal, but it will never give satisfaction, and the wearer will assuredly become a frequent visiter to his dentist.

From the many opportunities of observation of pieces of artificial teeth of ordinary construction, which have fallen in my way, I am disposed to attribute many of the failures which occur in the attempt to restore the power of mastication, as well as the appearance, and therewith the comfort and health of the patient, to the culpable oversight of neglecting to give sufficient height to the artificial grinders. The height of the remaining natural molars is too generally taken as a guide for the artificial substitutes, so that the improper contact of the front teeth remains undisturbed. The intended grinders are thus rendered useless, and the wearing down and loosening of the front teeth goes on until the whole are destroyed.

Great variety of opinion exists as to which is the most eligible mode of restoring lost teeth, as well as to whether *natural* or artificial teeth, (known as mineral teeth,) should be employed. In my opinion no general rule can apply to the selection of the materials to be used, or the plan to be followed. A skilful dentist will allow no predilection in favor of, or prejudice against, one mode or another, to influence him in his decision. He will consider well the peculiarities of the case entrusted to his treatment, and will adopt such means as experience tells him are best calculated to ensure permanent ease and comfort to his patient with perfect efficiency of the apparatus he supplies. The only obstacle to his success, over which he can have no control, is the unwillingness or inability of his patient to incur the expenditure requisite to enable him to construct the artificial substitutes of the best material, and yet secure to himself the well-earned reward for his ingenuity in devising, and his skill in executing his task; and in such cases he will do well to decline the undertaking altogether. Neither scantiness of material,

nor baseness of quality, can be admitted in the construction of artificial teeth. The ivory of the hippopotamus, being, from peculiarity of structure, far more durable when exposed to the chemical action of the fluids of the mouth, than that of the elephant or walrus, although much more expensive, must be employed. Gold undergoes no change, although continually exposed to air and moisture. The application of *pure acids* even will not cause it to oxidise. No metal is, therefore, so well adapted to this purpose as gold, and to secure fully the advantages it offers, it must be of a high degree of purity. The employment of gold very extensively alloyed, or even of baser metals slightly gilt over, is resorted to by the fabricators of *cheap teeth*, and is therefore clearly obvious, even supposing the planning and workmanship to be good, that the introduction of such articles into the mouth, will end in nothing but discomfort and disappointment to the patient, rendering that affliction which was already bad enough, much worse. I would recommend every one who may contemplate recourse to such a mode of procuring a replacement of his losses, to gain a foretaste of his probable condition, by placing a copper coin in his mouth, and retaining it even for a few minutes. The experiment will possibly suffice to alter his intention.

The mode which in my opinion is best adapted to the generality of cases, and which seldom fails to give satisfaction in every respect, is the employment of a gold plate for the upper jaw, and hippopotamus ivory for the lower. As regards the description of teeth to be used, if the piece be of ivory, the teeth *may* be carved out of the same block; and for the formation of the grinders this is the best mode, as the discoloration which ensues on exposure to the moisture of the mouth, &c., is of no moment. This unavoidable result is, however, a great objection to the use of ivory, divested of enamel for the front teeth, and demands the employment of natural, or of mineral teeth. Natural teeth, though not so durable, and subject to a slight alteration of color, are yet preferable to mineral teeth, in this especially, that they are lighter and far more congenial to the structures of the mouth, producing a greater degree of comfort in use, and presenting altogether a much closer resemblance to nature. Some individuals, however, feel an insuperable objection to their use, although they should be regarded in the light of mere pieces of ivory, and to these the process of fabricating artificial teeth has been a welcome discovery. Mineral teeth have long been in use on the continent, but they are exceedingly brittle, and by no means well formed or colored. Teeth of this description have been brought to great perfection in this country by Ash, of Broad street, and Lemale, of Chandos street, from whom those used by nearly all respec-

table practitioners are procured. The pretended new discoveries in this way, daily boasted of in the public prints, are mere importations of French mineral teeth, and, although cheaper, cannot bear comparison with those of our own manufacture, for the reasons above stated.

INTRODUCTORY LECTURE TO THE GENERAL COURSE OF THE PHILADELPHIA COLLEGE OF DENTAL SURGERY.

BY ELISHA TOWNSEND, M. D., D. D. S.

The first step in an "enterprise of great pith and moment," is naturally a stand-point for such "large discourse of reason, looking before and after," as may vindicate its necessity and assure the hope in which it is undertaken.

Before the anchor is weighed or a sail set, the provision for the voyage should be stowed in the ship's hold, and the chart of her contemplated course drawn for its direction; and if, perchance, new and unknown seas are to be explored, the forecast of her fortunes must be carefully calculated and provided for, according to those fixed laws which govern alike the contingencies and the known conditions of the venture.

None of the great achievements which mark the stages of human progress, and make the epochs of its history, arose out of sheer speculation. They rested with reasonable security upon previous demonstrations; upon some ground of observation and experiment, which might support the towering hope until the prophecy was realized, and the fact stood as firm and clear in all men's apprehension, as it rose at first in the faith of its projector. All discoveries, whatever the difference of their spheres, are analogous in their essential characters: none of them are quite new at the time of their full revelation, and none of them are fully believed or expected, till they are actually demonstrated. Yet the unknown is but an outbirth of the actual, as the future is the offspring of the present. The seed of next summer's harvest lies concealed in the bosom of the earth, but it will appear in due time; the husbandman is assured in his hope, and the reaper may trace the full grain in the ear to the root, hidden from superficial observation in the soil. The heavens and the earth are ever faithful to their trust, and the hypothesis built upon their known fidelity, is but an anticipated fact. Thus the routine of the returning seasons generate the faith which supports every-day life; but there is the same element of constancy in the reliances of the boldest-spirited adventurer, for, there is an equally fixed character in the laws of that nature which is the subject, the basis and material of his undertaking. It stretches, indeed, into some new

region, and must encounter some unknown conditions ; but it still belongs to the great system in which he finds the promise of his hope ; it is a part of the globe which he has traversed till he reached his outlook, and there upon the shores of the continent, whose limits have been already traced, he picks up some stray fragment, some strange fruits, of the unknown world, which the natural currents have borne forward to his feet, the harbingers of a richer soil and fairer clime than observation has yet found. He accepts the sign, he turns again to look with opened vision upon the facts which he has known but not understood, and they add the confirmation of scientific induction to the hints which accident has furnished, and his reasonings settle into that solid certainty of conviction, which fits the hero for his achievement. So Columbus gathered up the tropical fruits which the gulf stream floated from the western continent—so the curtain of thick darkness which girdled the old world's seas, opened a vista to his enlightened vision—so he turned and read in the circular shadow which the earth cast in an eclipse upon the moon's disk, the proof of the planet's sphericity, and with the compass ever pointing to the pole, and the stars fixed in their places for his guides, he penetrated the mystery hidden from the ages, and resolved it into facts, which enriched the world, and radically reformed its popular philosophy. On the ground that the greater always includes the less, and because the living principle is the same, we feel warranted in our allusions to his example, though we affect no parallelism with his great achievement. Some fruits of the richer territory which we seek to occupy and cultivate, have floated to us upon the rising tide ; the grand outline of our complete system we have traced in shadow upon the mirror of reflection, and in the faith of an adequate fulfilment, we stand to-day ready to launch our barque upon the waters.

Public instruction in our specialty, after the forms familiarized and approved by experience in the kindred branches of medical and surgical science, have already had such trials as may at least serve for studies, and stand for warranty of the more complete and comprehensive scheme of collegiate instruction we have designed. As long as fifty years ago a lectureship upon the principles and practice of Dental Surgery was established at Guy's Hospital, in London ; and the continent of Europe is not without other instances of the like character ; but our own country claims the honor of instituting the first Dental College proper, and of demonstrating the feasibility of the classical system of tuition, by a rapid multiplication of such institutions in different parts of the Union.

The Baltimore school holds the rank of pioneer in the great movement ; Ohio, Kentucky and New York, have already entered before us in the

field, and Philadelphia this day enlists in the same service. It is true, we have had, as yet, but a brief experience of the plan, but it is equally true that the demonstration is conclusive. What it has afforded of success, is our warranty for similar effort; what it lacks, marks out for us the pathway of improvement, as our own defects will in turn indicate the required advancement to our own successors. The profession of Dentistry is so well distinguished from the other branches of the healing art, so separated by the special requirements of its study and practice, that it does not admit of being blended with them advantageously in a common system of tuition. In fact, the teachers of general medicine and surgery never have attempted to qualify practitioners of Dentistry for their office, nor to unite its practice, beyond the very simplest of its operations, with that of the doctor of medicine and surgery. It is a natural and insuperable difference between our branch and theirs, which makes our independence at once compulsory and complete. They cannot practice our art, and that which they cannot practice they cannot teach, for they cannot know it. *All* the knowledge of their departments is indeed available, and much of it is necessary to us for our uses. Without a fair acquaintance with Anatomy, Physiology, *Materia Medica*, Chemistry, Surgery and Therapeutics, no man can be an *accomplished* dentist; he cannot meet all the exigencies of his position, and perform with safety its highest duties, much less can he advance the science toward that excellence which it still demands from its disciples; but however well instructed in these collateral, or as they stand to us, elementary departments, the student of general medicine may be, he is yet ignorant of our specialty and incapable of its practice, and must therefore pass through the teaching and training of the Dental profession, *de novo*, bating no jot or tittle of its integral and independent system, on account of his previous attainments. His former studies directed to a different use, are at once too general, diffuse and inexact, in the points wherein they coincide with ours, for the service which is demanded, and in most important particulars he is left wholly unprovided with the necessary instruction. This is not denying the thoroughness of the medical faculties in the sciences which they teach, or claiming for professors of Dental schools a profounder knowledge of the human structure and its laws, but it is insisting only that their teachings want the special drift and application, which Dental Surgery and medicine require. For example and illustration, notice the fact that the Anatomy, general and descriptive, of the schools, as it is taught from the appropriate chair, is not deemed sufficient for the professor of Surgery. There is another aspect of the science which he calls Surgical

Anatomy, which is indispensable to the thorough instruction of his pupils. In like manner, the professor of *Materia Medica* must supply a special Chemistry for the service of his branch, which is not expected or practicable from the professor of general Chemistry; and Physiology must be translated or modified into Pathology, by the teacher of the practice of medicine, before its principles can be applied to the treatment of diseases. Now for similar reasons we require a Dental Anatomy, a Dental Chemistry, a Dental Surgery, and *Materia Medica*, *after* all attainment that the student may have made in the general knowledge of these branches; and it is not too much to say, nay, it is clear as a parity of reason can make an inference of logic, that every elementary department of the general study, must be shaped and qualified for our uses by the special application which our profession makes of them. Of such necessary selection, and such fitting modification, it is no disparagement to say, the teachers of the general healing art are quite incapable. I might go farther, and gather additional confirmation from the fact that a true system of education and practice requires a severance of the physician and surgeon from each other, appropriating to each an entire and peculiar tuition in all the branches common to them all, and providing more perfectly for the qualification of each in its special points of difference, than an omnibus system of instruction can be made to afford. But the argument of the point is unnecessary here. Dentistry demands competency for its own purposes in all the species of knowledge into which medical learning is divided, and dentists are necessarily the most competent judges of their own requirements, and I need not say that nothing prevents them from teaching what it is their business to know. I do not now put this matter controversially, it would be out of place here; but it is *not* out of place, nor is it assuming too much for the occasion, to submit the point as the result of our own experience, observation and reflections, resting it confidentially on our own authority, warranted at least by the earnestness and strength of conviction which our undertaking evidences. We are, besides, not without the corroborating judgment of such authorities in the medical faculty, and among the most influential names in our own branch, as might well confirm us, if, for any reason, we could entertain a disturbing doubt of our premises, or of the results which we so confidently aim at.

American dentistry is not the earliest upon the record, for the art is something older than the civilization of this continent; but it stands already so well advanced in professional attainment, and has earned a fame so wide and eminent for improvements which distinguish the more recent history of the science, that next steps in whatever may enrich

the store of its resources and improve the method of its culture, may well be expected from us. The commanding rank of our home-bred practitioners who have located themselves in all the principal cities of Europe, indicates our national superiority, and justifies the generous ambition of our countrymen in the boldest endeavors in new spheres of progress. American medicine, in all its branches, stands very creditably in the Old World's estimation, but none have won such eminence in the judgment of their rivals as ours, and it is, therefore, in the natural programme of our duties to keep the lead which we have taken in the race of professional improvement. But considerations such as these, though valid and effective, are yet only relative; the movement springs directly out of the intrinsic conditions of the science, and finds its proper impulse there. It has now, in the progress of development, reached a stage at which its accumulated materials and well-grown faculties require a corresponding change of forms. Its infancy has fairly matured into a vigorous manhood; it has outgrown the capacities of its nursery, and must use its freedom for the sake of ample room and scope for its appointed functions.

Such hints and helps as the parent sciences could afford it, have been accumulating since the revival of learning. The studies of the naturalists of the last century—the incidental attention of anatomists, surgeons and physicians, increasing in accuracy and importance up to the present time; the contributions of modern chemistry, and even the suggestions of artisans and artists, have rendered efficient aid in collecting material and revealing theory, which the young science has freely appropriated, and as cheerfully acknowledges. To the zeal and energy of its own proper cultivators, it is nevertheless mainly indebted for what it has acquired and achieved in the enterprise of self-construction. Our libraries are rich in the fruits of our own labors, and our periodicals, numerous and able, are pouring in their steady streams gathered from a thousand spring-heads of ever fresh discovery, until the very wealth and abundance of our resources obliges to such orderly adjustment and systematic array of matter and method, as our College is intended to promote in the business of professional instruction.

Answering to the exigency which has thus arisen, the Faculty of the Philadelphia College of Dental Surgery is organized with a view to the most thorough system of education, which the present state of the science allows, and provision is made also, for all expansion that lies within the scope of its opening prospects. The subject of our art, as has been already hinted, has such relations in all the regions of physiological inquiry as makes it capable of receiving and returning advan-

tages with them in reciprocal exchange. The naturalist classifies the fossil remains of extinct races by the characteristics of the teeth, and infers their forms, organization, habits and rank in the scale of animal life, by the indications which these organs afford. Medical men are beginning to give them their due value in the numerous pathological conditions which their diseases induce; but even greater than all these put together, is the interest of the public, in the usefulness and beauty which it is the province of the dentist to preserve and to restore. Indeed, in popular consideration, no physical function or faculty of the living frame, secures so high and just regard as those which depend upon the teeth. My audience, consisting as I am happy to observe of both sexes, represent by their attendance here, *that* public concern which our profession has awakened, and to which our enterprise is in good part specially addressed. It is not to flatter or conciliate popular opinion, that we accord it so large consideration; but it is fitting that its just influence should be acknowledged. Our patients are, perhaps, not more deeply interested in the qualities and fortunes of our profession, than in any other which has charge of the public health and happiness, but it is more open to their criticism, and they are therefore more capable of affording it an enlightened support; the action of unprofessional sentiment upon it, is accordingly more direct, as well as more effectively manifested. Operative dentistry is subject to clearer tests than any other branch of remedial art, and it is even more constantly and generally in requisition. Its merits secure a better appreciation, and our relations are, therefore, if not more intimate, at least more immediately felt in their reaction upon the practitioner. To this directness of public influence, we cordially concede much of the forwarding impulse which has effected the very rapid advancement made within the last twenty years. But it is quite as true that the wonders achieved in the treatment of the teeth, first invited and warranted the confidence and secured the interest which we boast of. The resources of our art, in preservation, cure and general treatment of the teeth, and in their artificial substitution, have a most ample and satisfactory demonstration in the general experience of the community, and the sympathy and support of the public in every enterprise of improvement, have deservedly a large place among the motives and reliances which induce our professional ambition.

From these more general considerations, which, under the circumstances, have seemed worthy of the slight notice given to them, let me turn to those which concern more directly and immediately the impulses, aims and prospects, which are of the proper life and substance of our

enterprise. Science in general, and in every distinctive form which it assumes by distributive appropriation to its several subjects, has a soul as well as a body. The beautiful Greek mythology personated the informing spirit of philosophy, aspiration and art, in the nine-fold choir of the muses. The impulse from which a great thought takes its birth has the pitch of inspiration, and the discoveries which reward a high research have the character of oracles. Truth is indeed only the earth-name of the divine ideas, when they have become incarnate in human conception, and its sentiment and service, its beauty and use, take the character of a natural religion. The mind and heart which it inspires to the full measure of a great purpose, swell away from the limitations of means and conditions; the abstract grows actual, the sphere of action universal, and converse with the absolute becomes distinct and real. *Thus*, nature herself provides a creative enthusiasm, and the inspired soul is raised to the tone, and *held* in the *sphere of noble achievement*.

The Faculty for whom I speak to-day, have felt the influence, and caught the spirit which urges the devotees of progress to their duty, and sustains them in its service. The greatness of the work cannot deter, nor the feeling of incompetency discourage them. The hardy spirit of adventure holds its purpose firmly in the strength of *hope*, and the necessity that is laid upon them, assures success as it vindicates the efforts it commands. From the humblest beginnings, they have in their own day witnessed the growth of their profession, up to such amplitude of resources as requires now a symmetry and system of array which will give all its rich capacities free play and adequate efficiency. With such apprehensions of our position, and to provide for these aims, our school is instituted, and its constitution and action are directed.

The chair of Anatomy and Physiology provides amply for such thoroughness and exactitude of instruction in these associated branches, as should lay at the foundation of the study. Specially directed to the structure and functions of the dental system and its immediate dependencies, there is yet scope enough for all general knowledge of these departments, and for those interlinkings of organization and sympathy which makes a unit of the human frame, and involves the general health and welfare in the actions and relations of each part. More than this, we are warranted in asserting, the usual term of study cannot possibly accomplish, and greatly less than this is the necessary result of any scheme which marks out a larger programme of attainment for the pupil. It is the entire competency of our policy of instruction to fulfil completely its utmost promise, while it answers the whole necessity of the case that entitles it to the confidence we give it. The table of

contents is not larger than the volume which discusses the promised topics; nay, it is the advantage of the chair that it is not crowded—not even full, or fuller of skeleton than the skin can hold, leaving no place for flesh and blood, or breathing room for life. The space and leisure can thus be occupied with excellence added to completeness. Our pupils will run no risk of superficiality and its absurd pretension.

The teaching promised and endeavored, is calculated for and capable of making them accomplished dentists, up to all the requirements of practice, and provided with the elements which are fundamental to safe and certain progress in discovery. Chemistry is an indispensable auxilliary of our art; but proficiency in this great field of study is sufficient work for the occupation of a life-time. We provide for such instruction here as relates it to our own use, makes it available in our service, and informs the pupil in its general laws, so far as these enter into a necessary proficiency. So much as he can receive will be secured to him; not a chaos to conceal his ignorance, but a competency to accomplish him in his office; and the related department of *Materia Medica*, as it is required in the profession, is joined by a natural affinity to the duties of the chemical professor. So closely are these branches of a dental education connected, that they may be considered twin topics, and a natural affinity allies the special Therapeutics with which we are concerned to the remedial substances which we have occasion to employ. As in the first mentioned chair of Anatomy and Physiology, structure and function, organ and office, are presented in their natural union; so here substance and agency are held together, for mutual illustration and facility of apprehension.

I have indulged thus far in specifications of our plan, and its defensive explanation, to show the fulness of the provision which we make for classic tuition in the collateral and elementary sciences on which our specialty is based, and to suggest, at the same time, the large outlook which our system affords, into the broad domain of scientific discovery and practical improvement, which we hope to secure through the men to whom we shall commit the honor and fortunes of the profession. Among the remaining professorships are distributed all that belongs to the theory and operations, the principles and practice of Dentistry proper—the pathology of the diseases which fall within our province—the principles of their remedial treatment, topical and general—the process, diseases incident to, and irregularities of dentition, with corrective and hygienic management—operative Dentistry in all its details—the theory and art of dental prosthesis—the skill of the laboratory, and the manipulations of the office. In a word, all of science and art that issues in

the practice of the profession, and is actualized in the functions of the practitioner.

This brief synopsis of our scheme of collegiate instruction, it seems to us, defines with philosophical accuracy the broad province of our duties, and is as complete and symmetrical in what it embraces, as it is sound and expedient in what it excludes. It will be the business, as it is the duty of the Faculty, to fill up these outlines in substance and proportion, answering to the integral perfection of the system, with such ability as we possess, aided by the valuable facilities which our position enables us to command. But careful as we are in the provision made for the pupil's studies while under our own care, we do not overlook or undervalue the preparatory study and training of *private* preceptorship. We make it a condition of graduation that the candidate shall have studied under a private preceptor, at least two years, including his attendance at the College, or in lieu of this, that he shall have had the opportunities of three years' actual practice in the profession. Proficiency in Dentistry implies theory, observation and art; didactic or preceptive instruction in its very nature is incompetent to secure all this variety of qualification. To supply, vary and enlarge the required opportunities for actual practice, training and experience, the Dispensary and Clinic lectures of the College are provided on a scale so ample, that it must prove of incalculable value to the pupil. Estimating this department at its proper worth, no pains will be spared to make it, in conjunction with the training of the laboratory, yield all the benefits possible within the period allotted to the collegiate course; but we insist none the less positively that our alumni shall have secured all the advantages which previous study and practice under competent preceptors can afford. We desire to put in requisition the educational talents of every respectable dentist in the country. We know the value that there is in the varied methods and special excellencies of our professional brethren engaged in daily practice, and we freely concede the importance of their assistance in liberalizing and correcting a system of teaching, liable in the nature of things, to be over-strongly impressed by the peculiarities of a small number of professional teachers. Moreover, this feature of our policy, besides all other grounds for adopting it, will have the happy tendency to raise the standard of education in our profession, to enlist all the best ability of the fraternity in the work, and to guard the system of Doctor-making from the great danger of exceptionable facility.

Among the advantages which our institution may justly claim, a highly important one remains to be noticed. The city in which our

school is located holds, above all dispute, the position of medical metropolis to the American continent. Its libraries, museums, hospitals and colleges, are inferior to none in the world in excellence and adaptation to the purposes of professional education. The attendance of over twelve hundred students at every session of collegiate lectures is ample proof of the eminent rank which Philadelphia has attained in this respect, and it is a circumstance of material importance also to the prosperity of our own enterprise. The gentlemen who make up the faculties of these schools, are renowned on both sides of the Atlantic for their attainments. The ardent cultivators of all the natural sciences allied to our pursuit, and helpful in its development, abound among us, and the scientific literature of our city is eminently rich and general. These are advantages of position and surroundings, of no slight importance, both in the service which they may be made to afford, and the influence which they must exert in our behalf. They are so many means of usefulness in our hands, and they cannot fail to stimulate our ambition in some fair proportion to the pitch of their dignity and value; and we are proud and happy to add, that the generous sympathies which naturally belong to eminent attainments in liberal learning are freely and courteously accorded to us.

Standing thus prepared upon the threshold of our undertaking—urged thus by the most imperative considerations of personal and professional obligation—encouraged by the kindly sympathy of our brotherhood, and by the prospects of a reasonable success, we yet cannot altogether suppress the solicitude that naturally attaches to an enterprise of such magnitude, and capable of such important results in matters of the dearest public and personal interest. The weight of the responsibility which we have assumed oppresses us, and the very natural feeling of insufficiency to meet the great demands of our position, sobers the else exultant hope of our hearts with its shade of fear. But we meet the pressure of these apprehensions with the resolute strength of our purpose, with a well warranted reliance upon favoring circumstances, and with the inspiring worthiness of our aims; and under the steadying influence of these feelings, we are enabled to begin our work, “bating no jot of hope or heart.”

We cannot refrain, and it would be unjust to do so, from acknowledging the gratification and pride which we feel in the number of gentlemen already engaged in practice, who have done us the honor formally to rank themselves among our pupils, with the intention of receiving our diploma in accordance with the provisions of the College charter. It is due to the frank confidence and generous support which they thus

accord to our institution on the very day of its birth, to assure them that the compliment is understood and appreciated, that it will be duly regarded, and so far as in us lies, be honorably deserved.

We regard our movement but as the natural and necessary result of causes which would somewhere find fitting men and means for their development. During our revolutionary war the first knowledge of Dentistry was introduced into this country. No longer ago than the year 1830, there were not more than 300 practitioners in the Union, of whom, perhaps, not more than one in five had attained much practical excellence. In 1842, the number had risen to 1,400, and in 1848, to full 2,000. During the comparatively brief period which this reminiscence covers, discoveries have followed so quick upon each other, and practical improvement has grown so greatly, that the spirit of the profession is fully aroused, and the method of instruction which we are adopting, is put in requisition to meet its enlarged capacities and necessities.

Answering to the obligations of our position, and with such readiness and fitness as we could command, we turn now to our brotherhood for their generous sympathies and aid, and to the public for such encouragement as our future efforts shall deserve.

For the Dental News Letter.

HEMORRHAGE FROM THE EXTRACTION OF TEETH.

MESSRS. JONES, WHITE & McCURDY:—I see an article of some length in the July No., page 354, Dental News Letter, from A. Berry, D. D. S., referring to Fox, B. B. Brown, Bell, and others, on the best plan of stopping hemorrhage from the extraction of teeth by pressure, which is all right. But permit me to call the attention of ours as well as the medical profession, (as I have never yet found it suggested in any of the popular journals of the day,) to the use of sulph. magnesia in sufficient quantity to operate mildly on the bowels, say 1 $\bar{3}$. As singular as it may at first appear, it is nevertheless a remedy that has never yet failed in my hands, and one that I universally use in all cases of an endemic or hemorrhagic diathesis, as well from the extraction of teeth as from any other cause, for which it will be found a sufficient styptic, without the use of pressure, as recommended, in from fifteen minutes to half an hour. I believe if it had been used in the case referred to by Henry Whitworth, M. D., as reported on page 400 of the July No. of the Dental News Letter, taken from the London Lancet, it might have proved sufficient. This is why I feel it my duty to make it public, and request for it a trial.

Yours, truly,

WM. R. WEBSTER.

REVIEW OF DR. HUNTER'S THIRD SET OF FORMULAS.

BY JOHN ALLEN, D. D. S.

Again we have another set of formulas published by Wm. M. Hunter. This is the third set he has given to the profession within the last year, which promises to be of as much utility, without practical demonstration, as either of the others. And what has been his motive? To this inquiry an answer is found in the result which he has intended to produce, which can be seen by looking at the vein of bitter feelings, which have stood out in such bold relief throughout all his effusions upon this subject, which shows that they have emanated from the baser passions of the heart, viz:—Professional jealousy, malice and revenge; instead of philanthropy, generosity or magnanimity. Therefore no practical good can reasonably be expected to result from evil designs. In the first set of formulas that he published, he stated that they were worthless; why then did he publish them, if not for the reason above named? The second set he regards no better than the first, and although no practical good could be derived from them, he seemed to think their publication might serve his malicious purpose. Having failed to realize his expectations thus far, he then sent to Washington and obtained my formulas, and published them also. In doing this he evidently had two objects in view, one of which was to try to annoy me, and the other to appropriate them to his own use—or such portions of them as would serve his purpose—and then claim them as his own, which he has done. In his last formulas, he exhibits the same malicious spirit towards me that characterized his former articles upon this subject, with a few more falsehoods, which we will notice, although we had come to the conclusion to take the advice of an eminent divine, (Dr. B.) who remarked that he once wrote a whole volume against a skunk, and gained nothing by it, but rather got the worst of it. He therefore advises all persons who desire clean skirts, to let skunks alone. But let us first notice a few paragraphs in his last, “issue of receipts.” He commences by saying “that he does not know that he shall offer any thing new to a certain class of readers, but feels convinced that the better informed of the practitioners in our profession will find a practical elimination of good from old ideas.” As much as to say that he alone had been able to render old ideas practical. In his next paragraph he states, that to Delabarre must be given the credit of having first conceived and executed the union of artificial teeth with an artificial gum and plate.—Vide Fitch's Dental Surgery. This gum, as described by Delabarre, consisted in a kind of inlaid work, which he

called callodantes, which were set in porcelain paste, after being ground upon stones into convenient shapes, and fitted together like joiner's work, which were then united by means of a flux. This, the reader will perceive, was as different from mine as blue is from black.

Delabarre's method was not rendered sufficiently practical to be adopted or brought into use by the profession; therefore cannot be brought as a bar to my patent, on the ground of abandonment. In the next paragraph he gives Audibran the credit for granulated body, and then gravely asks "where is the new principle in the patent now claimed?" Let any one compare the two methods, and he will see that there is no similarity in them. In his first paragraph, he states that he did not expect to give any thing *new*, but in his *sixth*, he states that *he* is the one who has perfected the body as used by Jones, White & Co. in the manufacture of their teeth. And in the next sentence, he says, "it is applicable to ordinary gold plate as used by dentists generally in the form of block work, and is made by him in continuous arches where a full denture is required." He further says he uses it, on an alloy of gold and platina, 20 and 22 carats fine.

Here he conveys a false impression, by holding out the idea that his (my) gum, and Jones, White & Co.'s tooth body are identically the same. To prove the falsity of this assumption, one has only to fuse or attempt to fuse a little of Jones, White & Co.'s tooth body upon a gold plate, and then he will see the bait that is thrown out for effect.

He next proceeds to prove (what no one disputes) that platina has long been used for dental purposes, and then strings together three or four falsehoods, (merely to give *point* to his preceding remarks) in the following order: "So it will hardly do to set up the claim for *novelty* at this late date; the *patentee*, however, is excusable, for as *he does not read, he presumed* that it was original *in the practice* from which *he pilfered it*, and so *originated it*."

With reference to the use of platina, my remarks in its favor were in reply to his, against the use of it, in which I stated that I preferred it as a base for this style of work. That I claim its introduction for dental purposes is *false*; it cannot be found in my specifications. That I do not *read* is *false*. That I *pilfered it* is *false*. That I *originated it* is *false*. In the next sentence he states, that since he first put work into the mouth his modes have changed very much. No doubt of it, especially since he sent to Washington and obtained my specifications, for he now uses the same ingredients which are embodied in my formulas, and he now finds that good asbestos is a valuable component, which he did not know until he obtained a knowledge of the fact from

me. He also learned from my specifications, that platina scraps, united to the plate of gold, for the body to cling to, together with the cohesive properties of the compound, formed a strong union between the gum, plate and teeth, and he can now see how it is, that teeth mounted in this way can resist such strong force. He next proceeds to compliment Dr. Wildman, the object of which is easy to be seen, and then proceeds to give formulas, which we will pass over without further reference, and merely notice some of the last remarks with reference to me. He thinks my vindication the most childish and contemptible effusion he had ever seen. Be it so. I did not study his taste or interest when I wrote it. I thought it only necessary to notice the main points in which my interests were involved. The first point that I endeavored to establish was, that I had made a valuable improvement in setting teeth; and another point was to show that great efforts had been made to wrest it from me—that in spite of those efforts I was fully able to substantiate my claims. Another was, that my method is original with me, and I am not indebted to any other person for it. These I regarded as the main points worthy of attention. But we will now notice some of the others, although of minor importance. He says that Dr. Brown described to me a piece of *his* work two months before I had entered my caveat, and endeavors to convey the idea, that it was not until after Dr. Brown gave me a description of *his*, that I attempted any thing of the kind myself. This is *false*. Dr. Brown testifies that he saw work of that kind that I had put into the mouth more than a year before, and that he was cognizant of the fact that I had been endeavoring for years to perfect a system by which this could be done, and that I was in the habit of getting materials of him with which to conduct my experiments. Now, will the reader look at the facts with reference to this minute description given me by Dr. Brown, upon which he, Dr. H., lays so much stress; long after I had been producing work of this kind, which fact was well known to Dr. B., he one day remarked to me that Dr. Hunter was getting up something similar; I asked him if the teeth were united to each other and to the plate like mine, and he said he could not tell how it was done, not being a dentist, but he saw a piece that he was going to send to the World's Fair, and that the gum appeared to be continuous and looked like block work, and that was all that passed between us upon the subject. So much for the minute description given me by Dr. Brown. His next sentence reads thus: Even John Allen himself is not so reckless of his reputation as to hazard the assertion that I could not have proved priority, &c. I do assert most positively, that he cannot show work of this kind that he did prior to

my having executed it. On the contrary, it was long after I had first produced it that he did any thing of the kind, and it was the fact of my doing it that prompted him to make the efforts he has to effect the same ends, and that he and his clique have done every thing in their power to wrest it from me. The means which have been employed were calumny and falsehood—but the object was to first put me down and then rob me of my invention. In attempting to do this they found they had a formidable task to perform. Hence the various tactics that have been resorted to, to accomplish that object.

He further asserts that the "Miss. Valley Ass. of Dental Surgeons declared at sight in favor of it," &c. That is false. The society appointed a committee one day, and that committee reported the next, having at least twenty-four hours to test it in acids, try the strength of the material, &c., and then reported the result of their investigation to the meeting; whereupon the society passed a vote of commendation. He then refers to another false charge with reference to Steemer, which I have refuted again and again, with ten or a dozen positive affidavits. He thinks me very impudent or very foolish to call upon the unfledged noviciates of the Ohio school and sixty dentists to controvert his assertions. Such an array of testimony does not suit his fancy. Again, he says, "failing in my first attempt at imitating what *he* had accomplished, I again tried my imitative powers, and now claim as a part of my patent the soldering of teeth to the plate." It is false that I attempted to imitate what he had accomplished. I never saw any thing of the kind that he ever did until long after I had been doing this style of work. On the contrary, he called at my house to see some of my new style of work. I showed him several specimens, and he then remarked that he was going to make some, and when he got them done he would show them to me, and in some few weeks after that he brought and showed me a piece that he had made, which was the first I had seen of his make. The *imitation* was got up by *him*, not by me. And I do again assert that the first continuous gums he ever saw fused upon the teeth and plate were done by *me*, and that several years ago, I embodied this principle and applied it practically for my patients. Again, he says, "No man in his common senses would ever dream of soldering the teeth to the plate." Now, if he will look again at my letters patent he will find the following language:—

"This compound should be intermixed or underlaid with gold and platina scraps. These form a metallic union with the plate upon which the teeth are set." And if he will look a little further he will find the following:—"Although back plates may be attached to the teeth if

desired." Either of these methods may be adopted without conflicting with the spirit of my patent. Therefore his charge against me of fraud, is also *false*.

Again, he says, I "also attempt to show that his work is merely block work soldered on." We have his own words for it, as published in the Dental Recorder, and also a still more clear description of which is given in the fourth number of the fifth volume of the Dental News Letter, which states that "Dr. Hunter's *claimed* improvement consists in uniting single teeth together and then mounting them by soldering to the plate." Therefore it is *he* that attempts to mislead the reader, not me.

He next states "that one of the specimens described to me was on platina plate." I did not know it. Only one piece was spoken of to me by Dr. Brown, and so indefinite was his description that he did not state what plate it was on. In the next sentence he asserts that "I only got platina plate to experiment with, on learning that he was using it, (this is false,) he not having taken all that was ordered for him." I never knew he ordered any. But again, he thinks it the height of impudence for me to use platina base, because Dr. Leslie had *claimed* it for *him*. Of course then it was very impudent in me to say that I preferred it as a base when Dr. H. wanted the credit of it. He next repeats the inquiry, "should a fracture occur, what are the means of repair that would prevent a recurrence of the evil?" In answer to this inquiry I would state that it is much more easily repaired than ordinary block work, for we do not have to carve and bake a new set of teeth and blocks and then mount them as at first, but simply grind off the gum to the plate, and if it is too weak, strengthen it with additional metal, and then put on a new gum and fuse it, and the work will be perfect again, with the same set of teeth, without the trouble of taking the teeth off the plate and then re-mounting them again.

His next sentence reads thus, "Now for a few more of the main points that he has not thought it necessary to answer." I thought them irrelevant and unworthy of notice, being of the same stamp, emanating from the same source, and fraught with the same evil spirit which has marked his whole course towards me.

"I accused him of an attempt to bribe."

This accusation is false, and is based upon the following trivial circumstance. In speaking with Mr. Tomin with reference to employing Steemer, he said Steemer owed him borrowed money, and he wished he could get into some business that would enable him to pay it back. I remarked that if he worked for me, a portion of his wages might per-

haps be applied to paying it off. So much for this charge. Again, he says—

“I accused him of surreptitiously obtaining a patent with a fraud upon the face of it, and he has not answered it.”

In reply to this charge I do assert most positively that it is *false*, and there is not a shadow of truth in it. Again—

“I accused him of prevarication, and disgraceful evasion, before the American Society, and he has not answered it.”

I doubt whether the American Society has ever called upon Dr. Hunter to demand of me redress for grievances which it has not felt or known as coming from me. But he seems to think himself attorney general for all the Dental Societies, although not a member of any, nor was he present at either of the meetings referred to, and proceeds to bring another charge as follows—

“I accused him of having offered to pay for a gold medal to be awarded by a society, and he has not answered it.”

I never made such an offer to a society, and I appeal to the society for the truth of my assertion. But in the course of a conversation with Dr. Leslie at the Louisville Hotel, during recess for dinner, he (Leslie) expressed himself as being opposed to making the award of a medal, which had been proposed before the society. After assigning his reasons, which were various, I remarked to him that I did not wish the society taxed on my account, and that I would not accept of any funds of the society; that the award stamped the value and not the few dollars that it might cost, knowing, as I did full well, that the amount was no consideration with the society; that was not a point which could have any weight with the association. But Dr. Leslie being Dr. Hunter's right-hand man, and having become an inveterate enemy of mine, has made all the capital out of it that he could, and Dr. Hunter retails it out in order to excite public prejudice against me. Again he says—

“I accused him of wilful fraud in placing Brown's note in such juxtaposition, and he has not answered it.”

Juxtaposition to what? I do not know what he means. I sent a note to Dr. Brown, and he returned the following answer:

Cincinnati, Nov. 18th, 1851.

DEAR DOCTOR.—I have received your note, making inquiries in reference to your improved method of mounting mineral teeth upon metallic plates, and asking how long since I first saw yours worn in the mouth. You called my attention to it in the mouth of a gentleman, then living in this city, two years ago the coming winter.

Dr. J. ALLEN.

Respectfully yours,

J. M. BROWN.

Now, where the wrong is in thus eliciting a simple fact, I do not know. I asked him a plain question and he gave me a candid answer, stating the *facts* as he knew them; but such facts do not suit the doctor's taste. "Unwelcome truths he knows not how to bear."

His next accusation reads thus :—

"I accused him of making a false claim, when he claimed to have overcome shrinkage, and he has not answered it."

I now state that I can place my compound, when properly prepared, upon a full arch of teeth, and after it is fused upon the teeth and plate it will be found that the teeth have not changed their position in the least, neither is the plate drawn out of place in consequence of undue contraction, and the gum will be continuous without crack or blemish. His next charge, I have answered again and again, and therefore deem it unworthy of further notice. Finally, his last accusation reads thus—

"I accused him of being an *ass*, and he *has* answered it."

In reply to this, I would merely state, that I ever regard low black-guardism as unworthy of notice, and therefore always treat it with silent contempt, therefore I have *not* answered it.

His little story that he next introduces, may pass without comment.

In his concluding sentence he bristles up, and snaps and snarls away as saucy as Trip, and says "he will furnish the testimony if I will enter suit against him," &c. I prefer furnishing the evidence myself, for it is not customary for an *offender* to furnish the documents with which to convict himself.

As the question of priority is one of the points to be kept in view, I will here append a certificate from a gentleman I happened to meet with a short time since in this city, (New York,) who is now wearing a set of teeth put up upon my improved method three years ago.

"I hereby certify, that in the year 1848 I visited Cincinnati, Ohio, and being acquainted with Doctor Allen's family, was a frequent visiter at his house. It was during my first visits that I was shown by the Doctor some specimens of artificial teeth, with gums flowed in upon the plate and teeth, which appeared very beautiful.

"Doctor Allen informed me that he had been several years in preparing this gum. I saw him frequently in his laboratory, working at it, and often until a late hour of the night, trying further experiments in order to bring it to still greater perfection if possible. At a subsequent period, being in the winter of 1849 and '50, Doctor Allen executed a piece of work for me, upon which he flowed his gum, and although they have been in constant use ever since, yet the gum remains perfectly good, which I consider the ultimatum of dentistry.

"I showed it at the time to several persons, who admired it very much, for the very natural appearance of the gum and the beauty of the workmanship.

G. MINER HATCH.

"New York, Oct. 20, 1852.

"Sworn to before me, this 26th day of October, 1852.

"H. K. FROST, *Com. of Deeds.*"

Also the following:—

"I hereby certify, that while acting in the capacity of agent for Morris Levett's Patent Enamel, I called upon John Allen, of Cincinnati, Ohio, on or about the 24th day of October, A. D. 1849; and in conversation with Mr. A. upon the subject of enamels, saw some specimens which Mr. A. said he had done; also that he had been experimenting for some time previous to our interview.

"Given under my hand and seal, this 16th day of October, A. D. 1852.

THEODORE F. ENGLEBRECHT."

These are only two among many that I shall introduce at the proper time.

J. ALLEN.

For the Dental News Letter.

EROSION OF THE ENAMEL.

MESSRS. JONES, WHITE & McCURDY:—I have occasionally had an opportunity of reading your valuable Dental Journal. I find in volume IV., October No., page 9, Lintott in speaking of Erosion of the Enamel, says, "There is no known means of arresting its progress." In this I would beg leave to differ with him. My practice for the last ten years has been, when I have a case of this kind, to cleanse the cavity perfectly, take a small piece of nitrate of silver, place it in the cavity, dip an instrument in clean water, place it (with the little water attached) upon the nitrate of silver, and move it a little till the silver is dissolved, being careful to have it enter all the parts; this turns the cavity a dark color, but if carefully done, will arrest the decay; if not, you will have to operate a second time. I had an opportunity of watching a case of this kind for three years, (carefully done,) and it never changed in that time. The person afterwards moved west, and I had no farther opportunity of noticing the case. I do not pretend to say this is any thing new, but I have had many cases of the kind, and this mode presented itself to my mind; I tried the experiment, and it has done well in my hands.

Yours, with respect,

R. BROOKS, *Dentist.*

Piqua, Ohio, October, 1852.

IRREGULARITY OF THE TEETH.

An Essay read before the American Society of Dental Surgeons, at the meeting held in Newport, R. I., August 3, 1852.

BY DR. E. TUCKER, OF BOSTON, MASS.

Mr. President and Gentlemen :—It was with a proper mistrust of my own ability to afford you instruction, that I consented to address you on any subject at the present time. I did not consent with any conviction that I should render a service that might not be better given by others, but rather from a sense of duty that the humblest member of society owes to himself and to those with whom he may be associated, always to use at all times his best endeavors to do what he can to promote a common object.

The American Dental Society was not, I presume to say, formed for the display of mere theoretical knowledge, but rather with a more utilitarian purpose, that of interchanging the practical results of a common experience, and of communicating opinions without ceremony and without a spirit of rivalry, in regard to the vital interests of our profession. I speak only for myself—as you are all better acquainted with the opinions of others than I am. It will not be expected that I should tax you with any fragments of learning, knowing full well that where the whole is possessed the parts are not wanting.

In speaking of the *irregularity of the teeth*, I claim your attention upon a subject which has an importance in itself, and which requires rather the application of an ordinary knowledge, than any great exertion of genius. In the spirit of a praiseworthy ambition to discover new things, we are apt, *very apt*, to hold old ones in contempt. In attempting to accomplish some end for notoriety, we are too much given to the habit of neglecting what many might denominate *trifles*. It will be conceded, I think, that in making out a course of duty for himself, a dentist should avoid the unworthy motives which slight the items of common knowledge, or which prevent difficult attainments, because in the language of Wall and State streets, *they do not pay*. Our profession, like all others, has its barren duties, as well as its profitable opportunities. We must take it as it is, doing every thing required by science, and neglecting nothing which shall promote the refinements and comforts of humanity. The littles make up the creditable aggregate, and no item, however small, should be disregarded. It is a recent thing to attempt to *regulate the natural growth of the teeth*, as if they were to be made an exception to every thing else. To remove a tooth has been considered as equivalent to the loss of a *tooth*, as if numbers were regarded in the light of compensation for irregularity.

The farmer thins his nursery and his vegetable bed, that a growth may not be stinted, and a crop destroyed. A horticulturist cuts a surplus vine, or bud, that the flower may thrive and put forth its full measure of beauty, or that the fruit may mature in its highest perfection. It is not to be expected that the dentist can re-model the defective jaw, or give unquestioned beauty to badly formed teeth; but no one will deny, that he can very much improve what may be termed unfortunate formations.

It is a difficulty which all must deplore, that parents generally deem the teeth simply instruments of use, but not of care. They are not prized until they begin to fail, or are entirely gone.

Irregular teeth are lamented indeed—but few, however, ever seriously look for a remedy, which too many believe beyond the reach of human agency. Some err in thinking that the teeth of a child may be made to grow in harmony, but give no thought to teeth of a maturer period. This is a great mistake. Of difficult cases within the sphere of my practice, five-tenths of the patients have been from 16 to 25 years of age. Out of sixty cases, I have not lost more than three teeth, and these were affected previously by disease. We cannot always command desired results; but it is not reasonable to allow our failures to discourage all proper application of skill. If the *pulling rings* which I have commended to the profession, do not invariably result in improvement, we have no right to infer that their use is to be condemned. Such a principle would lead us to discard all but literally sovereign remedies, known only to the credulous and the quack.

In the early part of my professional life I was led to consider the best means of saving the teeth. What is generally deemed an act of friendship, on the part of a dentist, ought to be considered a professional duty. People do not think of a doctor until they become diseased, and all are comparatively indifferent as to his opinions in respect to preventives. So of the dentist; his aid is not asked, except to remove and remedy an evil which already exists. Having two difficult cases some six years since, I was led particularly to study the best means to be employed in managing them. The spiral springs were too stiff, or too yielding, and the gold bands were difficult to adjust. I looked for a substance that would accommodate itself, if I may so express myself, to the circumstances of the case. A substance that would exert a steady power, and adapt itself to the variations of a changing growth in the teeth, which were the subjects of treatment. I could think of nothing more proper than India Rubber, and with a view to obtain rings of various extent, I ordered *tubes* to be made of different sizes, which, by

cutting transversely, I had at once a class of instruments, the simplest of the simple, and the cheapest of the cheap. They were easy of application, and with improvements such as I have been able to make, they have proved to be *efficient* for all ordinary cases of irregularity.

In favoring the use of India Rubber tubes, or rings, I would not be understood as underrating all other contrivances, or any of them. I speak an honest opinion, founded on my own experience. Let it be received for what it is worth. I ask no commendation that contributes to personal consideration, or to motives which are not common to the profession. Though simple, these rings cannot be used with advantage, unless applied with the utmost care; indeed, a careless application of them may create new difficulties, or aggravate old ones.

The exact position of the teeth, the line of force to be observed, and the tensivity of the power to be exerted, are all considerations requiring study, and a careful judgment. I submit the means for your consideration and trial, well knowing that you are too practical in your views to decide upon their usefulness without a knowledge which alone can come from experience and observation, and that you will not be inclined hastily to condemn any method of practice which promises a common good, without a patient and unprejudiced examination. It might seem to a superficial person as favoring too much the profession, if we were to recommend both to the parent and physician, an early resort to the dentist for advice and service, in reference to the teeth of children; and yet, such a course would result in economy and comfort. There would be saving of money, and a security against pain. A child should be early placed in care of the dentist, that he may be spared the premature removal of the teeth on account of a troublesome pain, and that no means necessary for the preservation of the teeth should be neglected. We are necessarily compelled to guard against two extremes—an unreasonable solicitude on the one hand, and culpable neglect on the other. Mothers are apt to look for immediate remedies, where time alone is necessary, with common prudence; or to suppose that because their own teeth required no regulating, the same is true of their children. A slight soreness or inflammation of the gums may often be relieved by some astringent, until the proper period arrives for the removal of the offending member. As a general rule no tooth should be extracted until its successor is near at hand. In my humble opinion there is one rule which should always be observed, viz: To extract no temporary tooth from a child, unless absolutely necessary for some special reason, such as ulceration, &c. This is done too frequently, and I feel persuaded that it is the duty of the dentist to condemn the practice.

The progress of science depends much upon the exercise of an independent judgment. Dentistry is a profession requiring both science and mechanical skill. We are responsible for its instrumentality. We are not mere agents to answer the specific requests of patients, who desire our services in a particular way, and who at the same time hold us responsible for any failure. If a dentist be truly fitted for his profession, he owes a duty to science, to use his best judgment in all cases, and oftentimes without regard to the preconceived opinions of those who are the subjects of his care. Otherwise he is constantly liable to the annoyance of complaints, for consequences for which he is not answerable, and misrepresentations for which he cannot account. Unless his knowledge entitles him to be chief judge in all cases, he might as well save time by omitting all inquiries which are supposed to result in the surest means for meliorating the conditions of the patients. For no consideration whatever, should the dentist be persuaded to please his patrons against his own deliberate judgment. Such a course, may sometimes excite the conceited patient, who calls upon the dentist as a mere *mechanic*, but generally it would be approved, and ensure a safe practice, and tend to establish the respectability of the profession. Comparatively speaking, Dentistry is a new profession, and hence the importance of opening new sources which shall reach every variety of minds engaged in its practice. There may be individuals who have always kept by themselves, and who might have important suggestions to make, if we could but reach them.

I would advise a wide survey for discovery, that no one may be neglected who has genius and skill, and a disposition of inquiry. Such a line of conduct, may lead not only to the improvement of others, *but* result in profit to ourselves. I am no friend to professional jealousy, to that stinted view of things which commences with suspicion, and ends with contempt. It is unworthy of the votaries of science, unworthy of man, when considered in his moral relations, as being responsible for his motives and his acts. We sometimes avoid men, because of preconceived opinions which are unfavorable to their standing, or capacity, when perhaps a more disinterested mood of intercourse might oftentimes bring within our sphere persons eminently fitted for professional distinction, and who require no aid but the right hand of fellowship to ensure a confidence and to command a skill. Genius is limited to no class—success confined to no family. The brightest gem is sometimes thrown up by the humblest miner, and it is not for us to say who is to be, or *who is not to be*, the leader in discovery, the greatest in our art, or the profoundest in his inquiries to advance science, and to elevate the profession with which we are proud to be identified.

ANATOMY AND PHYSIOLOGY OF DENTINE.

An Essay read before the American Society of Dental Surgeons, convened at Newport, R. I., August, 1852.

BY J. DE HAVEN WHITE, M. D., D. D., S.

Mr. President and Gentlemen:—The subject which I have chosen for the present essay is the *Anatomy and Physiology of Dentine*.—Anatomists are in the habit of dividing a tooth into three parts, viz : A *body*, a *neck* and a *root*. The body is that portion which appears above the gum. It is protected by a semi-transparent crystalline and insensible substance, the *enamel*. The neck is embraced by the gum ; is about a line in breadth, and intervenes between the cessation of the enamel and the margin of the alveolus. The remaining part is the root, which articulates by the *gomphosis* articulation, with the alveolar process. There are three different tissues entering into the composition of the structure of a tooth ; two of these may be considered peculiar to this organ, viz : The Dentine or tooth substance which forms the body and root, and the enamel, which invests the body of the tooth. The third tissue termed *cementum*, and by some *secondary dentine*, forms a thin layer, which invests the root of the tooth, from its neck to the extremity of its fang, where it is thicker than at the neck, and as age advances, it is deposited upon the surface of the dental cavity. This deposit commences at the upper part of that cavity, and gradually increases with the years of the individual. In very old persons it so completely fills up the dental cavity, as to leave behind no rudiment of its previous existence.

The arteries which supply the teeth, have their origin from the *internal maxillary* branch of the *external carotid*, and the veins, by which the blood is returned from the teeth, after following the course of the arteries, form the *internal maxillary vein*, which terminates in the *external jugular*.

The nerves which supply the teeth with general sensibility, are the *fifth cerebral nerves*, commonly called the *fifth pair*. Every tooth has within its body a cavity, called the *dental cavity*, which is very similar in shape to the class of teeth it occupies, being larger in the body, and narrowing off as the root diminishes, terminating in a capillary foramen at the extremity of the root. This foramen gives passage to the blood-vessels and nerves composing the *dental pulp*. This pulpy substance is enveloped with an exceedingly delicate and vascular membrane, which is a reflection of a similar membrane, covering the external surface of the root, which membrane is also the production of a membrane called the *periosteum* of the *maxillary bone*. There are, therefore, 1st:

The maxillary periosteum, which lines the socket of the tooth; 2d, an external periosteum of the root; and 3d, an internal periosteum, lining the dental cavity; the two latter membranes in health, perform similar functions, namely, that of nourishing the bony substance of the tooth.

Structure of Dentine.—According to recent microscopical observations, dentine or tooth substance is composed of two distinct parts, "*Dentinal tubes*" and a uniting medium—an intertubular tissue. The tubes have distinct parieties, which nearly or quite equal their calibre, and although usually empty, yet sometimes, even in healthy dentine, appear to contain a minutely granulated substance. Their arrangement is radiated, the centre of radiation being the pulp-cavity.*

"Each tube commences on and contributes its share to form the walls of the pulp-cavity, from which point it advances in an *undulating* course towards the surface of the tooth; the general direction being nearly rectangular with the surface from which it started. If a single tube be traced through its whole length, it will be found to have made two or three large bends, and in addition to these, which are called the primary curves, a vast number of small undulations; these latter are termed the secondary curves."

"In their course the dentinal tubes give off branches, and these, meeting with others of similar character, anastomose, and thus form frequent connections throughout the whole substance of the tooth. The nearer the tubes approach the enamel, or the cementum, the more frequent are their branchings, till at last they terminate either by anastomoses with adjoining tubes, or pass into the external structures, or else terminate in a dilatation—or become so extremely minute, that they are lost to the sight."

The foregoing description may be considered a general outline of the dentinal tubes, subject, however, to many modifications in different parts of the tooth, as for instance: "The coronal tubuli suffer but little diminution in size, till they divide, and then the branches conjointly are larger than the parent tube. Sometimes, indeed, two tubes unite near the enamel, and from the larger tube so formed, two or three minute ones are given off." And the terminal branches, having arrived at the line of junction between the dentine and enamel, are lost, or recurve and anastomose with contiguous tubes, or pass across the line of junction into the enamel, or else end in a dilated extremity near the surface of the dentine. "In the tubuli which occupy the neck of the tooth, instead of pursuing an uninterrupted course, till within a very short distance of the termination of

the dentine, and then dividing into secondary branches, like those of the crown; the tubes of the neck give off during the latter third of their course, numerous fine hair-like branches, visible only under a very high magnifying power." "The parent tube at the same time, gradually decreases in size till it is no longer traceable." In the fangs of the teeth, the anastomosis between the tubes is far more general and frequent, than in the crown, and their distribution much less regular. "There is considerable discrepency with regard to the size of the dentinal tubes between different observers; some estimating them at from the $\frac{1}{10000}$ to the $\frac{1}{4620}$ of an inch in diameter. That there is a great difference in different specimens, and even in different parts of the same specimen, there is not the slightest doubt. At present, the dentinal tubes and cells, and the pulp-cavity, have alone been described as existing in the dentine; but, in addition to these we have, in many instances, canals for vessels traversing the tissue, just as we have the Haversian canals perforating bone."*

Frequently after extracting a tooth, I have enlarged the foramen at the apex of the fang, with a drill, sufficiently to insert a strong metallic plate, and then upon forcing an instrument into the pulp-cavity, the blood contained in it would be observed to escape from numerous pores over the fang of the tooth, proving that there are more than one point of entrance and exit for blood-vessels in the root of a tooth, call them what you may. "The dentine is, in some animals, in all cases vascular; the teeth of the walrus offer an example, as do those of the kangaroo and the rabbit." The structure of the enamel is very simple, it is composed of semi-transparent fibres, placed side by side and closely united. Their form is an approximation to a six-sided prism, and tolerably uniform, being from the $\frac{2}{10000}$ th to the $\frac{3}{10000}$ th of an inch in diameter, and are held together by a membrane, called enamel membrane. "The cementum is considered, by different observers, as being similar to osseous tissue,† and highly vascular."

The foregoing hasty and limited description of the tooth and its structure, will be considered sufficient to understand its *physiological* condition, as is observed by Mr. Tomes: "That osseous and dental tissues are, in form and arrangement of their cells and tubes, very closely allied. But the relations of their ultimate tissues are yet closer; for dentine and cementum, and probably enamel, are built up, like bone, of more or less spherical granules, the difference in the tissues being in the arrangement of the granules, and in the relative quantity of earthy matter with which they are impregnated." Chemical

* Tomes.

† Tomes, Goodsir and others.

analysis shows a very close alliance between their organic substances, 28 per cent. in dentine, and in bone 33.

It is clearly established that the Dentine is tubular in its structure, and that it receives a supply of nutrition in consequence, there can be but little doubt. I have very frequently broken open numbers of teeth after extraction, and taken out the pulps, weighed them, and exposed them to a heat ranging from 90 to 100 degrees for several days, and then on weighing them again find that teeth from young persons, say 20 years of age, in 100 grs. lose 16 grs., and one batch of 100 grs. lost 12 from older individuals; and upon soaking in common water for one week gained 10 grs. again; taking advantage of this fact, I placed a number of teeth in the tincture of red sanders, some after being dried and some before, and in a few months they became tinged with coloring matter, as the accompanying specimens will show. I have referred to this latter experiment in a paper which I had the honor of reading before the Pennsylvania Society of Surgeon Dentists, in June, 1846; and since published by order of the society in Stockton's "Dental Intelligencer;" and some of these specimens which have been in the tincture for years are so highly tinged, that were it not for the shape of the tooth, it would scarcely be detected as tooth substance. That the coloring matter can enter as well from the external surface of the tooth, is proven in the following manner: take a perfectly sound tooth, drill the foramen at the apex of the root sufficiently large to receive a strong metallic plug, then place it into the tincture, and it will become highly tinged also, but not in as short a time as if the dental cavity were also exposed to the action of the fluid. I believe I have the honor to be the first to have obtained the complete infiltration of the Dentine with coloring matter of a completely formed tooth out of the body. This experiment explains the cause of the blueness of the teeth after the destruction of the pulp; the decomposed pulp is absorbed, or when it disappears, the foreign substances which enter the dental cavity through the cavity of decay are also absorbed; it also proves the injurious consequences of a too frequent and too long an application of poisons to teeth to destroy the pulp. In treating toothache, the poisons are absorbed by the tubuli, and are brought in contact with the external membranes, and produce inflammation. The accompanying specimen shows the enamel to be slightly susceptible to the effects of coloring matter also, and the extremities of the fangs less so than the body of the tooth. That the teeth could not be imbued with coloring matter when once formed, has been, heretofore, held as conclusive evidence that the tooth substance was devoid of vascularity, by the most eminent

writers—*Hunter, Horner* and many others. The experiments of Mr. Hunter, of feeding growing animals upon a colored diet, with which you are doubtless familiar, producing a layer of discolored tissue, without effecting that already formed, and which experiments Professor Horner asserts were verified by his own observation, proving that the tissue already formed is not vascular, is by no means satisfactory to my mind; they merely prove that the teeth are more susceptible of being tinged with coloring matter while forming, than when once formed. Neither is a suspension of the colored diet for a few weeks, in order to produce a layer of white and a layer of red, (which twelve months, perhaps, would wholly obliterate,) conclusive. The time, “a few weeks” in so dense a tissue, where the circulation is feeble, is not sufficient to change wholly its character. Again, the coloring matter must be a foreign substance; and that it remains there, does not prove that a “commutation of nutritious particles” is not constantly going on around it; for, if we reflect that coloring matter, of various hues and shades, in the form of the well-known India ink, is constantly being introduced into the skin, where we are quite sure a very rapid change of “nutritious particles” is going on, at all times, and does not remove during a long life the most delicate devices, which are frequently made there, the whole argument falls at once to the ground. It is asserted that the red blood globules are too large to enter the dentinal tubes, as the average size of a blood globule is $\frac{1}{3000}$ th of an inch in diameter, and the dentinal tubes $\frac{1}{4630}$ th. It is well known by dental practitioners, that if the dental pulp be partially destroyed by some corrosive agent, that the violent inflammatory action established thereby, induces a red tinge in the body of the tooth, or in a single root, as the case may be, in which the inflammatory action would seem to have been greatest. The accompanying specimen will clearly illustrate this fact; it is a case where arsenious acid was applied for destroying the pulp, but as the tooth excited considerable pain some days after, it was extracted; when its present appearance was observed. It will be seen that the root most discolored, is the one opposite the point of the exposure of the pulp, and that the one most distant, the palatine, is of the natural appearance. Injuries of the dental pulp without the application of any corrosive agent, will induce the same appearance of the tooth substance. I have proven by repeated experiment, that to excite bleeding of the pulp, and then plug the cavity of decay, that the whole tooth substance will become tinged with red; whether it is by the passage of the blood globules entire, or merely by the infiltration of their coloring matter, after they are disintegrated, I am not able to decide; but

whether the tubuli are too small to receive blood globules or not, does not to my mind, seem of great physiological importance; but that they have not the 'liquor sanguinous' circulating through them, as other white tissues have, is of great moment. To prove this point, I will relate one single case, which I observed about seven years ago. A Mr. T., a most intelligent gentleman of our city, called upon me to have a front tooth plugged which was very much decayed; it was of very large size, and translucent, and very nearly decayed to the nerve. After having removed all the decayed matter from the tooth, and in looking carefully to see whether the pulp was exposed or not, I observed a dampness in the bottom of the cavity, which I wiped away, but which returned again as often as wiped away; seeing that it was oozing from the pulp cavity, I waited for a few minutes, and as much as a half drop accumulated in the cavity. I did not plug the tooth under such circumstances, but applied to the part some tannic acid, and in a few days the oozing ceased entirely, when I plugged the tooth as firmly as possible with gold; but in a few months I observed the tooth turning blue opposite the pulp cavity beneath the plug, which blueness spread from the centre of the tooth towards its surface, until it became very much discolored; the blueness spread from within out, and not from without in, as is the case when the plug is not solid. Besides the tubal character of the tooth substance, there is another condition of it which will, perhaps, more fully establish its organization; I mean the extreme sensibility of the dentine to the touch, and when acted upon by chemical agents, for which various explanations have been advanced with regard to the pain excited. I think but one explanation can be given, namely, that of *irritation by actual contact with nervous tissue*. With relation to pain by friction, or to the touch, some contend that it is due to the tubuli being filled with a light serum, making a kind of column, the base of which, resting upon the dental pulp, renders it (the dental pulp) sensible of any impression which may be made upon its apex, which apex terminates beneath the enamel. I have, in many instances, endeavored to render this view of the case practical, by applying a heated instrument to a sensitive surface, believing that if the explanation were true, it could be rendered useful by drying out the extremities of the tubes, and thereby lessen sensibility, but it has failed. Others allege that it is in consequence of the friction or concussion of solids against the dense fibres of which dentine is composed, being communicated along them until it reaches the dental pulp and periosteal membranes; again, others assert that it is the result of the actual contact of substances with nervous fibre, which is distributed

in the dentine. The latter explanation seems the most plausible, which the following simple experiment will fully prove. Place an escharotic in contact with the exposed and sensitive dentine, no matter how distant it may be from the pulp, and leave it there for a time, longer or shorter, as the case may be, remove it, and all sensibility will have gone from the surface in which it was in contact; but cut down a little of the surface, and you will again find sensitive substance; for instance: place a small quantity of arsenious acid immediately beneath the enamel, and secure it with some white wax for a few hours, and it will destroy all feeling on the surface; but leave it a longer time, and it will be absorbed by the tubuli and destroy the sensibility of the whole tooth substance, when it is clear that it only acts upon the organic part of the tooth, leaving the calcareous fibres as capable of communicating friction or concussion, as before; if the structure of the tooth were at all broken up, by any such application, according to the first explanation, it would only render it more sensitive, as a greater quantity of fluid would then be absorbed.

Another circumstance which bears strongly in favor of the vascularity of dentine is, that during the absorption of the roots of the deciduous teeth, if the crown should be held in its place by the adjoining teeth, or should not be knocked loose by chewing, when its roots are absorbed, that the pulp which had its share in absorbing the roots, now lays hold of the crown, after the roots have been absorbed, and carries the whole of its dentinal substance away also; a circumstance which could not be explained if the blood-vessels stopped against the walls of the dental cavity, but, on the contrary, pass through to the enamel membrane; and again, under such circumstance, it requires a degree of force applied to the pulp to pull it away from its contact with the dentine; showing that it dips its vessels down into this substance. I have a specimen of this absorption with me. This peculiar absorption is not only confined to the deciduous teeth, but occurs to the adult teeth also; although it may be induced in the adult teeth by a different exciting cause than is concerned in the former class of teeth. Doubtless all present have plugged teeth when they believed that the pulp was not quite exposed, but in time pain would set in, or they would find from discoloration of the tooth, that the pulp had become dead, or inflamed; and on removing the pulp there would be a distinct opening from the cavity of decay to the pulp-cavity, so large that if such opening had existed before the plugging had been done, it would have been observed. It would seem from this circumstance also, that the deposition of cementum, which is looked for to take place beneath a plug, where it nearly reaches the

pulp, is very uncertain. If irritation is excited at all by a close proximity of decay to the pulp, it is as likely to provoke absorption as deposition of the cementum or dentine.

In conclusion, in the language of a recent writer, (Mr. Tomes,) "Strictly speaking, all tissues are in themselves extra vascular, that vessels do not permeate their substance, but pass only between their fibres, lamina, or granules, whatever be the structure of the tissues." "Taking the relative frequency of vessels in a tissue, as an index of the degree of its organization, teeth will be placed near the bottom of the scale, but different grades will be assigned to their three component tissues." "The cement, or tooth bone, will occupy the first; the dentine the second; and the enamel the third." It is a law of nature, that in passing from one form of organized matter to another, no sudden transition shall be made, but that the individual changes shall be so gradual as to be almost imperceptible. This law we find beautifully exemplified in the gradual change of structure in passing from the *cement* to the *dentine*, and from the latter to the *enamel*.

ENAMELS FOR METALS.

Enamels are composed of coloring matters, which for the most part consist of metallic oxides, and, secondly, of fluxes, or vehicles for the color, consisting of vitrifiable substances, such as silicates, borates, or boro-silicates, in different proportions. The color of an enamel results either from the color of one of its constituents, or is a result of the chemical combination of the constituents; in the one case, the coloring of the matter is simply mixed with the flux, or, if the flux combine with it chemically, it does not affect its coloring property; in the other case, the flux has a chemical action on the coloring matter.

Gold, silver, and copper are the metals which are usually enamelled. The enamels used for the purpose must have their point of fusion below that to which they are applied; it must be higher for copper and silver than for gold. They must be very fusible when used alone; but when they form a ground for other enamels, they must be capable of resisting a high temperature without fusing.

Enamels are opaque or transparent; those which are used as a ground are opaque; those which are used in painting may be transparent or opaque, but the latter are usually preferred, especially for silver and copper.

Enamelling on metals is more difficult than on glass and porcelain. The presence of an oxidizable metal usually produces a reaction

between the two bodies; the enamel dissolves the oxide which forms on the surface of the metal at a high temperature, and becomes colored thereby; or the enamel may itself oxidize the metal, in consequence of the oxide of lead contained in it, in which case the lead is reduced, and the color is destroyed. Hence gold admits of being enamelled better than copper and silver; but if gold contain copper, some difficulties may be experienced. On copper and silver the enamel generally undergoes some change, at least in the layer which is in contact with the metal. If the enamel is transparent, the defects are apparent; but if opaque, and the surface smooth, the defects are concealed. Copper and silver are sometimes first covered with an opaque enamel, and afterwards with one that is transparent.

The objects to be enamelled are usually prepared for the purpose by the jeweller. They may be entirely or only partially covered with enamel, according to the design. In the one case there must be a projecting edge to retain the enamel, and in the other certain hollows engraved according to the design.

All the enamels which are applied to metals have a vitreous, transparent, colorless base. The following are recipes for transparent enamels:

Silica, 3 parts; minium,* 5 parts; nitre, 1 part; borax, 1 part.

Opacity is given to enamels by the addition of a certain proportion of—1, oxide of tin, 2, phosphate of lime, or 3, oxide of antimony. The oxide of tin is first combined with the oxide of lead before the enamel is made. For this purpose metallic lead and tin fused together, and raised nearly to a red heat; the oxide which forms on the surface is removed as fast as it is formed; heat is again applied, to render the the oxidation more complete. It is next stirred up in water to precipitate the minute portions of metal which have escaped oxidation, and in this way the oxide can be separated.

The proportions of tin and lead which are to be thus fused together vary according to the composition of the enamel into which these oxides enter. A quantity of oxide of tin equal to about one-tenth of the weight of the enamel will render it of an opaque white. The proportion of lead is variable according to the kind of enamel required. For this purpose the following alloys will be found useful:—

Lead, 5 parts; tin, 1.

In the following recipes for opaque enamels, the oxide of one or other of these alloys is used instead of the oxide of lead in the transparent enamels:—

Silica, 3 parts; nitre, 1 part; lead, 5 parts; tin, 1 part; borax, 1 part.

*Red Lead.

The above enamels are those adapted to gold. The more fusible enamels required for copper and silver may be formed by the addition of one-eighth of their weight of calcined borax. By the further addition of this substance the fusibility of enamels may be increased at pleasure.

Colored enamels may be formed either opaque or transparent, by melting up with any one of the above enamels a certain portion of some metallic oxide, as indicated in the following recipes:—

BLUE ENAMEL.—Take opaque or transparent enamel, 10 parts. Oxide of cobalt, 1 to 2.

GREEN ENAMEL.—Opaque or transparent enamel, 6 parts. Oxide of chromium, 1 to 2.

ANOTHER GREEN.—Opaque or transparent enamel, 30 parts.—Binoxide of copper, 1 to 2.

VIOLET ENAMEL.—Opaque or transparent enamel, 30 parts. Peroxide of manganese, 1 to 2.

YELLOW ENAMEL.—Opaque or transparent enamel, 6 parts. Chloride of silver, 1 to 2.

PURPLE ENAMEL.—Opaque or transparent enamel, 12 parts. Purple of Cassius, 1 to 2.

BLACK ENAMEL.—Transparent enamel, 15 parts. Oxide of copper, oxide of cobalt, and oxide of manganese, 1 to 2 parts of each.—*Scientific American.*

TOXICOLOGICAL APPLICATIONS OF NITROUS OXIDE.

BY GEO. J. ZIEGLER, M. D.

[Communicated for the Boston Medical and Surgical Journal.]

The recent fatal and deplorable accidents from the inhalation of chloroform, induces me thus early to give to the profession the results of a series of experiments instituted, and which I am still prosecuting, for the purpose of preventing such disastrous effects, not only from the influence of this, but all other analogous agents, and in fact in all cases of suspended animation from whatever cause, unconnected of course with organic lesion, &c.

The report of these experiments has been deferred till their completion, to render the evidence more conclusive; but as the necessity is so immediate and imperative for some more efficient means for the prevention of such casualties, and the more positive resuscitation, when animation has thus been dangerously suspended, and in the hope that the agent here presented will supply the long-sought desideratum for the purpose, I will give a brief abstract of them so far as I have pro-

ceeded, reserving a more detailed account of my observations for a subsequent period.

The subject, however, is one to which I directed attention some time since in a publication entitled *Zoodynamia*, viz.: the introduction into the system of that powerful exhilarant and stimulant agent, nitrous oxide.

To test most rigidly its properties and practically to demonstrate its value, I placed dogs in an extremely dangerous condition by the influence of various well-known, highly-poisonous and destructive agents. Thus in some instances they were so thoroughly overpowered by such influences, and so completely asphyxiated, that respiration and cardiac action were apparently permanently suspended; whilst in other cases, respiration was deficient and the action of the heart barely perceptible. In others, again, these functions were very much impeded and overwhelmed, and at a very low degree of activity, with of course complete insensibility in all cases, and seemingly death in the former instances; yet notwithstanding such unpromising circumstances, on the injection into the bowels of this agent, in the form of nitrous oxide water, (an abundance of which was kindly placed at my disposal by the manufacturers,) they were completely and speedily resuscitated. The recovery in some instances, indeed, was so rapid and perfect as to be scarcely credible, unless from the direct evidence afforded by ocular inspection.

It will be observed that in most of such conditions the gas could not be introduced through the lungs by inhalation, or the surecharged liquid or any other agent into the stomach by deglutition, these functions being so completely in abeyance.

These agents that I have thus far experimented with are carburetted hydrogen, carbonic acid, chloroform, prussic acid, aconite, and strangulation by hanging; in all of which the most surprising and gratifying, and to my mind conclusive results, were obtained from the revivifying effects of this powerful remedy. It has succeeded in all these cases, with one exception, in perfectly and rapidly restoring the dogs from the conditions above specified to full life and activity in a very brief period. The exception is that with aconite, in which, however, the animal was restored to consciousness three different times, but ultimately relapsed too strongly for recovery.

The above is merely an imperfect generalization of the results obtained in these experiments; but, as before stated, a more detailed account will be presented at a subsequent period, as I anticipate being able to demonstrate still further the valuable properties of this extraordinary agent.

I will also incidentally state that (therapeutically) I have obtained very beneficial effects from the nitrous oxide in this form, in the treatment of various affections, particularly chronic conditions of the pulmonary organs interfering with proper oxygenation of the blood, as in chronic bronchitis, &c.; it seeming, also, to a certain extent, to be a resolvent to the diseased condition. As a general tonic I have found it very efficient, and consider it preferable, in many instances, to some of our standard remedies of that class; in fact, it may become a substitute for some of them, and I will here take the opportunity of bringing it forward as a succedaneum in the place of quinia in the numerous affections in which it is more peculiarly applicable. Also as a diuretic in general dropsy, the nitrous oxide water acted most surprisingly and efficiently in one case—the only one in which I have had an opportunity of testing it. In another case of chronic irritation of the urinary organs, it seemingly proved curative. Indeed it is indicated and applicable in all cases in which its peculiar stimulant and resolvent influences are desired, and its chemical constituents, especially essential to the pulmonary and renal functions, are required, except where incompatible from existing contraindicating complications.

From the results of my toxicological and therapeutical investigations with this agent, I am induced to believe that it will prove to be a remedy of greater and more varied application than almost any that we now possess.

Philadelphia, April 17th, 1852.

For the Dental News Letter.

INSERTING PIVOT TEETH.

MESSRS. EDITORS:—The confidence of the public is so far shaken and lost in pivot teeth, as they are usually set, that I am induced to offer to the profession a plan of inserting them that I have practiced for about five years, with the most perfect success, and thereby obviating the most objectionable points and causes of complaint against pivot teeth. I will not here describe the many causes of complaint, for I presume I may be understood without that trouble; but will, in as brief a manner as possible, describe the process of inserting the instruments and teeth used in my plan.

In the first place, I never set a pivot tooth, except upon a sound fang, nor more than two contiguous to each other; believing a larger number can be better supplied by setting upon plate. But for a single substitute, and when the fang is sound, there is no plan as good as a

well-fitted crown by pivot. My plan of setting, after excising and drilling the fang in the usual way, is to fit the fang with an instrument which I call the Counter-Drill. With this instrument, I cut the fang to the desired depth, to hide the base of the artificial crown below the gum, taking care not to disturb the periosteal membrane more than can be avoided. I then select a smaller size counter-drill, and cut down the fang about a sixteenth of an inch, leaving a peripheral to support the gum in its natural shape. The artificial crown is then fitted to the last used counter-drill, and if the work has been well-designed and executed, the crown must perfectly fit the fang. The instrument is a flat file-faced counter-drill, with a projecting pivot or guide from the centre, like cut.



I use five different sizes of this instrument, as the case may require. The centre pivot should be a trifle smaller than the pivot hole, and long enough to guide the instrument to cut perfectly at right angles with the pivot hole. To make certain the fit of the crown to the fang, I fit the crown to the last used counter-drill by passing the centre pivot into the socket of the crown, and fitting it to it by grinding, &c. The instruments should have a thin copper follower to protect the cutting edge from the tooth. To make the joint between the crown and fang imperforable to the fluids of the mouth, I use a solution of the pure tears of mastic, dissolved in chloroform, with which I thickly coat the wood pivot before forcing it home to the fang. The teeth I make of shapes as near as possible to the natural ones, round at the neck, flat base, of equal thickness around the pivot hole; but any good shaped tooth may be ground in the desired shape. While upon this subject I will describe a simple little instrument that saves much labor in making pivot woods; it is a steel plate about an eighth of an inch thick, with holes of sizes to suit for pivots, with a projecting cutting lip upon one side; the holes should be slightly narrowing through, so that by pressing the wood and turning it into this plate, the pivot wood comes through finished for use, round, smooth and compressed. The above plan of setting teeth will be found of less trouble to the operator, and much less painful than any other plan that I am familiar with.

Yours, most respectfully,

A. T. WILLARD, D. D. S.

Chelsea, Mass.

For the Dental News Letter.

REMOVING TEETH FROM PLATES.

BY A. B. CHILD, M. D., OF BOSTON.

It is well known to every dentist, that it sometimes becomes necessary to remove teeth and blocks from plates; and no one will deny the advantage of still preserving teeth and plate without the injury commonly sustained by the use of engravers, circular and long saws, files, &c. By this way of cutting teeth from plates, the backs are very liable to be cut too short, and sometimes too long; the teeth are often cracked or broken, the plate partially or wholly cut through; and from the unevenness of its surface, which corresponds to the natural unevenness of the gums, it is extremely difficult, and often impossible to separate the teeth from the plate in the exact line where they were soldered, thus leaving the plate of unequal thickness, rendering it unfit, at least without considerable labor, to again strike over for use.

I believe these difficulties are entirely overcome in a method sometime since suggested to me by J. M. THRESHER, of this city, which method he informs me, he has practised some years with perfect success, and with very great advantage; and I can testify to the dental profession, that I have practised it with the same happy results; and would recommend it, believing it to be a great improvement over all other methods now in use. The process is as follows, viz:—

Imbed the set, from which the teeth are to be removed, in plaster and sand, the same as for soldering; with a pencil brush spread a thin coat of fine quartz, or sand, mixed with a little plaster and water, over the whole surface of the plate, coming to the edge where the solder which holds the teeth to the plate terminates, leaving exposed the gold on the backs and the entire backs of the teeth. The plaster and sand in which the teeth are imbedded should be cut away in a small point, to give room for a wire to be applied upon each tooth, just in front of its cutting edge. The set may then be gradually heated in a charcoal fire, taking care that the bottom of the soldering pan is covered with a bed of fine coal, on which the teeth may fall. When near a soldering heat, a blowpipe may be used to fuse the solder, while an assistant, with a long wire, tips the teeth inward, one by one, till they are all removed. The plate may immediately be taken from the fire and the teeth allowed to cool on the hot coals.

Teeth *unsoldered* and cooled in this manner, are not more liable to crack than teeth soldered when imbedded in a thick coat of plaster and sand. The operation is very easily and quickly accomplished. The plate is left quite smooth, only a little solder remaining upon it, which

is drawn together in a small globular form, in the place from which each back was removed. The backs on all the teeth are left whole and perfect, with the addition of a little solder, which, as may also the solder on the plate, be easily removed by a file, and they may be made as clean and quite as good as new.

For the Dental News Letter.

OUR PROFESSION.

BY ROBEY AUGUSTINE.

The fact of the legislature at their late session granting, with such unanimity of vote, the charter for the establishment of the Philadelphia College of Dental Surgery, proves that they, at least, in their enlightenment, now understand and appreciate the importance of a thorough and complete dental education.

This change in their views* we are not to attribute to interested motives—at least of an individual nature—but to that progressive spirit of knowledge and refinement in whose train our profession is so necessary a concomitant; for, let the observation be made where it may, it will be found that in proportion as communities are composed of the educated or illiterate, in such proportion are the services of the dentist employed and appreciated. Indeed, we may go farther, and add, that such is the beautifully delicate nature of what we profess; so important and inexpressibly beneficial the aid and relief we promise to our afflicted fellow man, that without the enlightenment that enables him to understand our position, it would be as utter folly to expect him to appreciate its importance as it would have been to have reasoned with the classic Jove on his absurdity in casting down the gauntlet, hill Olympus—his challenge to the Sun. If, therefore, the dental profession can only attain its perfection when thriving in the midst of the wise and judicious, it must of necessity be a profession of great importance; and if such be its consequence, its honorable position, how necessary its practitioner should be competent to do it honor and justice.

From the many facts which have and are daily presenting themselves, can we only deduce this—its importance; and, therefore, can only ascribe the rather inferior position it has formerly held to its many disgraceful dependents; dependents who, like renegade sons, in disgracing themselves disgrace their connections.

* They refused the charter at a previous session.

Then, as we imagine, the necessity of fitness, of a thorough collegiate education and its attendant attest and recommendations of proficiency, will not only, on consideration, be at once felt and acknowledged by those who would become the arms of the profession, but most certainly the establishment of such colleges must be hailed as an era by a grateful public; rearing as they will, the bulwark which shall serve so effectually to protect them from the shameful and villainous impositions of the many uncaring imposters who, from time to time, assume so recklessly the garb and pretensions of dental practitioners.

Yet, we would not be misunderstood. We do not mean to say that this fitness is only to be acquired within college walls, far from it; for we have at this moment in recollection dentists, who we must believe (from our intimacy with their operations) can be excelled by no graduate of any term of our college. But how has their proficiency been acquired? By years of intense study, experiment and manipulation; like Archimedes, in their old age they can cry—"Eureka." And we, fortunate we, may now at the established fountain-head, drink of the waters of their experience.

All of us are familiar with the tedious, oft-repeated experiments of the immortal Franklin in his demonstration of the philosophy of electricity, and yet his most important conclusions are now comprehended in a single lesson by the attentive school-boy. And why is this? Simply because he has presented that which needed but his experiments to clearly demonstrate. And in just such a position stands our college. On its broad records are written out the experience of ages; here gathered together are the researches of all who have come before us; here cluster and shine the pre-eminent of the profession, and here the noble banners of theory flaunt their proud pennants to the gaze of him who will look. No, we do not pretend to say a necessary fitness is not to be acquired in the private office; but we do say, such study graduates the student much less influentially.

The tyro in medicine, by study and research, may acquire (at least to a considerable extent) a knowledge of the governing principles of Therapeutics and Hygiene. Yet how much greater is the confidence manifested by the community in his abilities, the corner-stone and rearing of whose structure has been laid and superintended by the master proficient; and, indeed, such is the change in public opinion, that we are forced to believe the D. D. S., will soon be deemed as indispensable to the respectable standing of the dentist, as is the M. D., at present, to that of our medical brethren. And here, as it presents itself, we beg attention to an incident related us by a friend substantiating this

conclusion—a feather in the wind, most true, yet showing, before the heavy vane, how the breeze is coming.

Said our friend, as we sat in his comfortable office on a cheerless night of the last winter:—"After graduating (he was a graduate of the Baltimore College) I determined, before making a permanent settlement, to make a summer tour of South Carolina; so, starting off one very fine morning about the middle of May, I found myself safe and sound, after three days' travel, a quarterer on mine host, of the Elm, in the pleasant little town of Beaufort. Here displaying my newly inscribed sign, and sending forth on their mission of solicitation the cards bearing my unknown name, together with the nature of my business, I sat down to await visitors. Three long days—and let me assure you, the most wearisome and monotonous I ever passed—dragged their slow length along without, as I heard, even the shade of an inquiry being made after the dentist. The morning of the fourth day rolled around, destined, however, to bring with it a brighter and more encouraging state of affairs; for on that morning, scarcely had I gotten through the ceremony of an unenjoyed breakfast, when face to face stood I with my first patient." "Really," cried our friend, indulging in an immoderate fit of laughter, at the recollection, "that first patient so nearly upset my equilibrium, that for the nonce it would have puzzled me to have told whether heart, brain or fingers were written as digitals, or whether, indeed, my parchment read dental or medical doctor. However, recovering my equanimity, I begged him to be seated. (He was a most important looking personage, and as I afterwards learned, the member of Congress for the county.) On looking at the affected part, which, if I remember rightly, was an anterior inferior molar tooth, I found a cavity occupying the whole grinding surface, completely filled and overhung with what I at once decided to be a far advanced state of Fungous Epulis; indeed, such was its enormous growth as to prevent a perfect closure of the mouth, thereby causing him much pain and inconvenience, preventing his taking any food except such as might be swallowed without the preparatory of mastication.

"He informed me that he had already consulted three physicians who had severally refused operating, fearing undue hemorrhage, (as the slightest puncture caused an effusion of blood,) uniting in recommending him to an eminent surgeon dentist, then practising in Savannah, (Dr. B., since deceased.)

"After some fifteen or twenty minutes' most careful study of the case, I offered an opinion, expecting, of course, his immediate concurrence and command to proceed for its removal. Imagine my surprise when, looking me steadily in the eye, and full five minutes, as it seemed to

me, he inquired, as was once inquired on a more important occasion—
‘But, by what authority say you these things?’

“To admit the truth, I scarcely knew what answer to make to so unexpected an interrogatory. I felt at the moment disposed to be offended; but then, he was a gray-headed patriarch, I a beardless youth. A second thought resolved me. Going to my chamber, I rummaged from the bottom of my trunk, where it lay all snug and safe, my hard-earned diploma; I presented it to him.

“‘That, sir, is satisfactory, most satisfactory,’ said he, desiring me to undertake his case.”

Our friend closed by a relation of his complete success with the case, adding that his fee was an unasked fifty dollar note, as well as an exerted influence in his favor, which brought him a most excellent practice.

This case, one of unnumbered ones, we suggest, showing as it does the desirable confidence a collegiate attest must and ever will inspire in the mind of the patient. A strong argument, one of the very many in substantiation of the advantage of such a course of study over all others; for, let the graduate settle where he may, he bears with him in his diploma, recommendations superior to all others.

But it is not our intention to suggest favorable arguments in support of the College; indeed, in so doing, we should feel that we were but offering insults to the good sense of those whom we address. None can give the subject their momentary consideration, without those arguments presenting themselves at every point; and it is but to ask consideration for them that we at present occupy these pages, to the exclusion of more professional matter.

The practice of dentistry, as we view it, is most important and delicate, requiring not only much knowledge, but mature judgment, great mechanical skill and an artistic eye, guided by a sense of the beautiful. As a writer remarks, “that man only can hope to attain eminence in the dental profession, who possesses the painter’s sense of the beautiful, the refinement of the poet, the correctness of the sculptor, and the kind habits of the finished gentleman.”

Let all of us have an equally exalted opinion and pride for the profession, for as we respect ourselves so shall we be respected; let us be too careful of its honor to tarnish it by malpractice—the result of unfitness; let us be too ambitious to seek to borrow from, instead of adding our quota to its dignity, and let us, who would receive the respect of our fellows, pursue from the beginning such a course as, while it shall exact it, will also confer upon us that truest of all respects—self-respect.

RISODONTROPY; OR, TREATMENT OF EXPOSED NERVES.

BY C. O. CONE, M. D., OF BALTIMORE.

[The following cases of Exposed Dental Nerves were treated by *Risodontropy*, or Hullihen's Operation, and are copied from notes taken at the time of the operation, by Dr. Cone.]

CASE 1st. *Sept. 1st, 1852.*—While excavating a carious cavity on the posterior approximal surface of the left inferior lateral incisor for Mrs. R., aged about 22 years, of a nervous sanguine temperament, and general good health, I exposed the nerve-pulp at the small fissure of the superior portion of the nerve chamber. The touch of the nerve was attended with acute pain, and the exhaustion of the atmosphere from the cavity by the tongue and lips of the patient was attended with a sharp pain.

I endeavored to penetrate the fang of the tooth just below the terminal margin of the alveolus with a bow-drill, but the refractory character of my patient demanding my left arm and hand to control the head, together with a want of dexterity in the use of this instrument in the mouth, compelled me to complete the operation with a drill made of an ivory handled excavator. The drill was conveyed through the fang of the tooth until its entrance into the nerve chamber, and which was very distinctly felt. The operation was attended with but little pain after the gum was punctured, until the drill entered the nerve cavity, when the patient uttered an exclamation of pain. Immediately after the operation no pain was felt in the tooth, and no sensation of pain could be produced by exhausting the air from the cavity in the crown of the tooth. I proceeded to fill the excavated cavity at once.

Sept. 3d.—Saw Mrs. R. She has not experienced any pain in the tooth treated by Hullihen's operation. She says it felt a little sore, but not elongated. I could detect no change of complexion of the crown of the tooth. Some inflammation existed in the gum, most of it dependent on the presence of drill cuttings. Removed such as I could.

Sept 8th.—I examined the tooth in Mrs. R.'s mouth, operated on by Hullihen's method. I could detect no change of complexion of the crown of the tooth indicating the loss of its vitality. No inflammation in the gum. The opening made by the puncture of the drill nearly closed. Patient has felt no pain in the tooth since the operation. This excited my suspicion whether the drill had not amputated the nerve. Endeavored to test the vitality of the tooth by galvanism. Took a small strip of commerce zinc, and brought it into contact with the tongue and the gold plug of the tooth operated on. No sensation indicating vitality was felt. Touched other gold plugs in the mouth plugged in

cavities, which were sensitive at the time the cavities were filled. In only one of these teeth was any pain experienced when the plug was touched with the zinc.

This time the sitting of the patient was employed in polishing the filed surface and the plug introduced in the tooth having suffered the operation of Risodontropy. The polishing material was conveyed on a piece of wood which passed readily between the tooth operated on and its neighbor. The heat produced by the friction of the wood and polishing material on the above named tooth was so marked as to leave no doubt of the vitality of the crown of the tooth. Care was exercised to avoid deception, and secure the neighboring tooth from contact with the stick and polishing material.

Oct. 15th.—I examined the tooth treated by Hullihen's operation, prior to Mrs. R. leaving the city for the Pacific coast. The puncture through the gum was entirely closed. She has felt no uneasiness except occasionally, on taking very cold water, a momentary pain was felt in the tooth, but nothing that could be called discomfort.

CASE 2d. Sept. 3d, 1851.—To-day I exposed the nerve of the first right inferior molar on the posterior approximal surface, for Miss W., aged about 22, of a nervous sanguine temperament, and of a scrofulous diathesis.

The superior and posterior portion of the crown was so removed by the file as to afford free vision of the cavity. The nerve was exposed at two distinct points corresponding to the tubercles of the posterior grinding surface of the tooth. After the cavity was prepared, the exhaustion of the air from the cavity gave great pain. The introduction of the end of the tongue into the cavity produced the same effect. In excavating the diseased bone from the cavity, the nerve and its vessels had been wounded, and the blood flowed freely into the cavity. The patient was now dismissed for one hour, with the nerve protected by the cavity being filled with beeswax. When she returned, she complained of violent toothache; I punctured the tooth with a "fixed drill." The drill was placed just at the margin, but above the alveolus, and entered the nerve chamber at the neck of the tooth, just above the division of the fangs. The entrance of the drill into the nerve cavity was distinctly felt by its plunge. The operation was attended by a good deal of pain; the patient exclaiming, "That's worse than having a tooth extracted." I could produce pain on applying pressure to the nerve after the operation was performed, and by the same means increase the flow of blood from the cavity formed at the neck of the tooth. The blood that flowed from this cavity was arterial. The pain that was before felt on exhaustion of the air from the cavity, was no

longer felt when the same test was applied. The pain felt by the patient before the operation gradually subsided, and in fifteen minutes no pain was felt in the tooth. The only discomfort experienced, was the "smarting of the gum."

The want of confidence, growing out of experience, in this class of practice, together with the violent symptoms which preceded the operation, caused me to hesitate in relation to the treatment of the tooth. I finally determined to introduce into the cavity a temporary filling, and if the operation promised success, replace the tin with gold. I accordingly filled the tooth with block-tin foil.

Sept. 4th.—Saw Miss W. again. No pain has been felt in the tooth, that could be called toothache. The tooth did not feel elongated, but she complained of soreness and pressure on the gum. Examined the tooth; no uneasiness could be produced by pressure applied to the crown of the tooth in any direction. Above the puncture, or between the puncture and the neck of the tooth, the circulation was stopped in the gum by the accumulation of the drill cuttings; removed them, which offered relief to the pressure of the gum.

Sept. 13th.—Miss W. called to inform me that the gum and parts about the tooth had been quite painful at night for the last week. The pain not of a throbbing or lancinating character, but dull and heavy. Pain felt more through the night than during the day. Not sufficiently severe to disturb sleep. On examining the tooth, found the gum a good deal inflamed on the labial portion of the tooth where the drill punctured it; soreness was felt on this side of the tooth when pressure was applied with the finger down the alveolus to near the termination of the fang of the tooth. Could apply pressure on the lingual portion of the gum without any pain. Violence applied in all directions to the crown of the tooth produced no pain, except when an instrument was forced between the tooth operated on and its posterior neighbor. The file had been used boldly between these two teeth and had lacerated the periosteum, where it unites with the free edge of the gum. Patient avoids mastication on this side of the mouth. No elongation of the tooth.

May 17th, 1852.—I had an opportunity of removing the tin plug. On examination of the tooth, no soreness was felt by pressure on either the gum or the tooth. No marks of the puncture through the gum, which is now healthy about the neck of the tooth. Patient says the soreness of the gum continued some weeks and then entirely abated.

On removing the temporary plug I could find no cavity leading into the nerve chamber. I could pass a steel excavator over the whole floor of the cavity, it being met in all directions with a bony resistance.—

To the eye, the floor of the cavity appeared to be covered at the points where the nerve had been exposed with a bone of a darker hue, but which presented a firm resistance. The injection of ice water into the cavity gave acute pain, which soon subsided. Proceeded to plug the tooth with gold at this sitting.

June 30th.—While operating on some other teeth for Miss W., examined the tooth treated by Hullihen's operation and can see no diseased action, and the patient experiences no change marking it as being different from teeth not having suffered the operation.

CASE 3d. *Sept. 4th, 1852.*—Mr. W., aged about 19, of a nervous bilious temperament, consulted me in relation to a cavity on the buccal and masticating surface of the inferior, right first molar. The tooth had been filled when the cavity was confined to the buccal surface of the tooth, but failed. The operator in endeavoring to shape the cavity to retain the filling on the second trial, removed so much dentine as to leave insufficient support on the masticating surface of the tooth, and this portion of the wall of the cavity was broken down. In endeavoring to obtain sufficient depth, &c. to retain a plug in this position, with sufficient firmness to resist mastication, I exposed the nerve at a point corresponding to the anterior labial tubercle of the masticating surface of the tooth. The exposure was slight, and could be detected by the excavator dipping into a fissure and producing a nervous shock. The vessels of the nerve were not wounded so as to bleed, neither could the eye detect the actual exposure of the nerve. The exhaustion of the atmosphere from the cavity was not attended with much or any pain. The dentine immediately about the fissure, which my instrument dipped into, had translucent lines, giving it a coronated-like appearance. Not being fully satisfied that the nerve was fully exposed, and not caring to drive my excavator unnecessarily into the nerve to test this point, I plugged the tooth temporarily with block-tin foil.

The patient returned after about two hours, complaining that the tooth was very painful and that the pain commenced soon after he was dismissed and had gradually increased. Considering this sufficient proof of the exposure of the nerve, I proceeded to perform Hullihen's operation, with the instrument, and in the manner described in Miss W.'s case. The instrument was distinctly felt to plunge into the nerve cavity. The pain attending the operation was not great. The pain experienced on his return and before the operation, entirely subsided in ten minutes after the operation. It was impossible for me to fill the tooth permanently at this time, in consequence of other professional engagements.

Sept. 8th.—I removed the temporary tin plug from Mr. W.'s tooth.

The point at which I supposed the nerve to be exposed was sensitive on the touch of a fine excavator. The exhaustion of the atmosphere from the cavity produced no pain. The tooth had given no pain after the operation, and in answer to my inquiries relative to its condition he replied "it feels sore." No elongation of the tooth. No uneasiness induced by pressing the crown of the tooth in any direction. The gum, at the point where the drill punctured it, was hard and slightly swollen. I plugged the tooth with gold. No pain was felt in condensing this large plug, which required a good deal of violence.

Sept. 15th.—Again examined the tooth of Mr. W. Complains of some pain about or in the tooth at night and in the morning. Pain not violent—not throbbing—not lacerating, but dull heavy pain. Gum swollen and tender on labial portion of the tooth; pressure applied on the crown of the tooth in that direction was attended with pain. Mastication is not performed on this side of the mouth.

Sept. 25th.—Mr. W. informed me that his tooth has been improving; the soreness of the gum has almost or quite subsided. Some days ago he endeavored to eat a cold apple, which was brought in contact with the tooth, which produced pain and continued for some hours. The puncture through the gum cannot be detected; pressure in any direction gives the patient no sensation of pain.

Oct. 1st.—Saw Mr. W.—ice water applied to the plug of the tooth treated for exposed nerve, gives acute pain. Gum has a healthy appearance. Can masticate on this tooth without pain.*

CASE 4th. Sept 10th, 1851.—To day I exposed the nerve at two distinct parts in excavating a cavity on the posterior approximal surface of the right superior first bicuspid of Miss F., aged about 24, of a bilious nervous temperament and of general good health. The exposure of the nerve was attended with a good deal of hemorrhage from its vessels, but caused no pain to the patient, and when informed that the nerve was exposed, expressed surprise. I performed Hüllihen's operation.

July 24th, 1852.—To-day I have seen Miss F., who resides some 70 miles from the city. The puncture in the gum has not closed; on introducing a bristle into it could detect pus. The patient gave the fol-

* *Oct. 20th, 1852.*—To-day I had an opportunity of filling a small cavity on the masticating surface of the right inferior first molar, for Mr. W. This tooth was treated by Hüllihen's operation, on the 4th of September, 1851. In excavating this tooth-cavity to-day, for the plug, the dentine of the tooth was very sensitive. No indication of disease beyond the carious cavities which were filled, marked the condition of the organ or surrounding parts.

lowing history of the tooth: About a month after the operation, the tooth began to be painful on change of temperature of the mouth—in first taking cold, and afterwards warm drinks—finally slight elongation was first experienced, and still later a “pimple” appeared filled with pus where the drill punctured the gum, which she opened. Since that time she has had no pain in the tooth of any kind, but occasionally the “pimple appears, filled with matter.” It should be remarked that the first superior left bicuspid, first and second superior left molars and the first and second right superior bicuspid, first and second right molar, had lost their crowns from dental caries, but at no time had their destruction been attended with pain. I extracted the fangs of these teeth during my attendance on the patient last September.

(To be continued.)

SEVERE HEMORRHAGE FROM THE GUMS IN A LITTLE GIRL.

(UNDER THE CARE OF MR. URE.)

That hemorrhage from the gums could endanger life seems at first sight unlikely; but as death has actually occurred from loss of blood in that locality, it may perhaps not be useless to dwell for a few moments on a case in which the means employed to arrest the bleeding proved successful. Surgeons are fully aware that it is extremely difficult to arrest hemorrhage when the blood keeps on oozing from an extensive and vascular surface; much more so, indeed, than when the loss occurs from a defined and limited spot, as in the latter case, pressure or the ligature of vessels has a very fair chance of success. As to the gums, for instance, we need not say how much more practicable it is to arrest hemorrhage after the extraction of a tooth or an incision, than in cases where the blood is issuing from a great extent of mucous membrane. We beg to direct especial attention to the favorable effects of turpentine which Mr. Ure obtained in the following case, the notes of which we obtained from Mr. Bullock, the house-surgeon:—

Mary W——, a delicate looking child, aged nine years, seemingly unaffected with scurvy or other disease of the gums, was admitted January 15, 1852, under the care of Mr. Ure. The child was brought into the out-patients' room by her father early in the morning; he stated that when he awoke in the night he found his daughter bleeding from the mouth, and that she had lost a great deal of blood, as her night-gown and neck were quite saturated. On examination, it was found that the bleeding from the gums was general, and no defined spot whence the blood issued could be found. An astringent gargle was therefore ordered, and the child allowed to return home.

In the evening the patient was again taken to the hospital, as the bleeding had continued ever since the morning, and was still going on. She was immediately admitted, sent to bed and tannin applied, but without any apparent relief. Nitrate of silver was then tried, but this, as well as the application of ice, likewise failed. Mr. Ure now ordered five minims of oil of turpentine to be taken in honey every hour, and a pledget dipped in the same fluid to be applied to the gums, and kept carefully *in situ*. This was done at about one o'clock in the morning, and finally arrested the hemorrhage. The night was pretty good; some castor-oil was given in the morning, and it was noticed that no blood was evacuated per anum. The piece of lint moistened with oil of turpentine was still in the mouth, saturated with blood. At four in the afternoon this pledget was carefully removed, whereupon the gums began again to bleed; the application was renewed, and the child now took internally ten minims of oil of turpentine in the same vehicle as before. She was allowed some beef-tea, and on the third day of her stay in the hospital the hemorrhage stopped altogether. The child remained, however, very pale, the pulse beating only 80, and rather weak. She was now ordered steel preparations, and left the hospital a week after admission in a satisfactory condition.

We shall conclude by quoting a case which occurred in Scotland, and which will tend to show that hemorrhage from the gums is sometimes an accident of a very serious kind. The facts were published in the *Scottish Guardian*, and reprinted in the *Morning Post* of June 20th, 1850:—

“At Kirriemuir, a young man died from the effects of profuse bleeding from the gums. About twelve or thirteen days before death, blood begun to ooze from between the teeth; this caused no uneasiness at first, but it soon increased, and the medical man made little of it, though the bleeding now came from the lower jaw, it having commenced in the upper. Two other medical men now visited the patient frequently, and various remedies were tried, but without the smallest success, none of the medical men acting in concert with one another. An eminent physician of Edinburgh prescribed, upon description, a totally different course from what had been pursued by the local surgeons; another celebrated practitioner was consulted at a distance simultaneously with the first, and ordered the head to be shaved and blistered, and also the back of the neck. This was the same treatment as had been advised by the Edinburgh physician. The patient was, however, too weak, and soon died. The young man had not had any teeth extracted, and had received neither hurt nor injury to the teeth and gums.”—*London Lancet*.

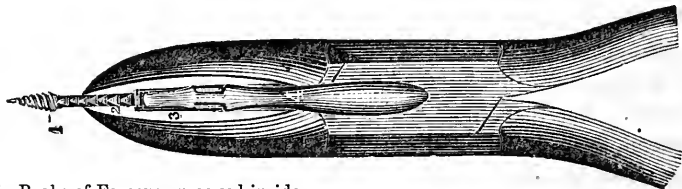
For the Dental News Letter.

DUBS' PATENT SCREW FORCEPS.

MESSRS. JONES, WHITE & McCURDY:—As I am frequently written to for a description of Dr. Dubs' Patent Compound Union Screw Forceps, I have thought it would be a satisfaction to the profession to give a drawing of one through the medium of your valuable Dental News Letter, with some explanatory remarks, showing wherein it differs from Dr. Hullihen's Screw Forceps; and as I am the only authorized agent for the manufacture of them, I would respectfully caution those wanting the instrument, from purchasing any except my name is stamped on one side and the patentee's name on the other.

Yours, respectfully,

HORATIO G. KERN.



1. Beaks of Forceps, grooved inside.
2. Conical Screw with square Ratchet Shaft.
3. Socket with square hole to receive Shaft.
4. Spring Trigger by which the Screw can be detached at pleasure, at any given point.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

At the annual stated meeting of the Pennsylvania Association of Dental Surgeons, held at the Dental College, October 5th, 1852, the following officers were elected for the ensuing year:—*President*, WILLIAM W. FOCHE; *Vice Presidents*, Stephen T. Beale, M. D., Charles Townsend; *Recording Secretary*, David Roberts; *Corresponding Secretary*, C. A. Du Bouchet, M. D.; *Treasurer*, F. Reinstein; *Librarian*, Samuel S. White; *Examining Committee*, Daniel Neall, Edward Townsend, J. M. Harris, M. D., J. H. McQuillen, M. D., C. C. Williams. The attendance was quite full, and much good feeling and harmony prevailed. The increasing usefulness of this association will be abundantly demonstrated to any one attending its meetings. All subjects that can possibly interest or improve the profession, are are ably discussed, and many useful facts elicited. This is one important method or plan of elevating and improving the profession. All jealousy is removed, all methods are discussed, and good feelings engendered; in a word, here is a common store-house of knowledge, from which all may draw freely. May success attend, as it will attend, all such organizations.

R.

THE DENTAL NEWS LETTER.

JANUARY, 1853.

Dr. Hullihen's new method of treating Exposed Dental Nerves.—

Our readers will remember the Essay of Dr. Cone which was published in our last issue, and in which this method was fully treated and explained. Since the publication referred to was made, an article from Dr. S. P. Miller, of Worcester, Mass., appeared in the Boston Medical and Surgical Journal, in which was set forth the same operation, as performed by himself for the last two years. This has called forth some replies from the friends of Dr. Hullihen, on the ground that Dr. Miller is disposed to appropriate to himself a discovery which of right belongs to another, and more especially so, as Dr. M. was present at the meeting of the Am. Society, held at Newport, last August, at which meeting the Essay of Dr. Cone was read, and that he then was made aware of the fact that Dr. H. had been practicing on that method since 1845. And they say further, that if Dr. M. had been following the same practice, he should have made it known then and there.

As to the claim of priority, Dr. H. unmistakeably has it, as he runs back as far as 1845, while Dr. M. only claims having practiced it for the last two years.

As to the merits of the operation, we have now nothing to say, leaving it for gentlemen to make their own experiments and draw their own conclusions; but we will be so meddlesome as to suggest that, had Dr. M. stated before the Society, what he has since published, this discussion, and some asperities of feeling would, in all probability, have been avoided.

The articles from Dr. Miller, have been published in the Boston Medical and Surgical Journal, where the mass of the dental profession will not see them. It would be much preferable, in every sense, if gentlemen of the profession would send their communications to some one of the dental periodicals, where they legitimately belong. We have periodicals of our own, and a literature of our own, and it should be quite as much interest to the practitioner as to the publisher, that they be sustained. But every one to his taste.

We hail with some pleasure, this acknowledgment, on the part of the medical profession, to the importance and progress of the Dental profession in this country, and peculiarly so, as such expressions usually come with such an ill grace and with so much the appearance of having

been forced from their authors ; but this is made "without stint or hesitation" and has honesty and candor about it.

As to the comparison between Europe and America, we can assure the editor he is correct. We are not aware of there being a single dental periodical now published in Europe, and the standard works of American dentists are authorities abroad. We have therefore much to be proud of on this point. We repeat, we hail these notices with satisfaction, as evincing a just and liberal spirit, and although late, none the less deserved.—ED.

Dental Literature.—A further examination of the treatise on Dental Medicine, referred to in the last Journal, has led to some reflections upon the amount of literary labor which has been exhibited by the practitioners of that art in the United States. While progressing in their manual operations, in the performance of which new principles have been developed and ingenious processes devised for remedying what nature refuses to repair, the American dentists have maintained several periodicals, abounding in papers of a superior order, and generally practically useful to the craft. Notwithstanding the fact that their Journals, in the form of monthlies and quarterlies, are beginning to be somewhat numerous, they still abound with original matter, and they borrow less from each other than most others in the service of any of the liberal professions. But this is not all ;—books, those of a sterling value, emanating from the same class of gentlemen, are already augmenting to a surprising degree, in which physiological researches, pathological discourses, and exact anatomical investigations, are constantly accumulating. How is it in Europe ? Are there Dental Journals there, and have volumes been multiplied by dentists of the old world, to the extent of what has been accomplished in America ? We think not ; and the country has abundant reason for being proud of these scientific dentists, who cannot be excelled in manufacturing or imitating the best specimens of nature. And with respect to the literature of their appropriate sphere, it will be a difficult matter for their transatlantic brethren to overtake them, however unwilling they may be to receive suggestions or instructions from the United States.

These observations have not been made without proper deliberation ; on the contrary, years of familiarity with the American dental serials, with their voluminous treatises, and their proverbial skill in the use of instruments, demands that this acknowledgment of what the dental profession have accomplished by their steady, united, persevering efforts, should be publicly expressed, without stint or hesitation.—*Boston Medical and Surgical Journal.*

Principles and Practice of Dental Surgery. BY CHAPIN A. HARRIS, M. D., D. D. S.—Fifth edition: Revised, modified and greatly improved. Philadelphia, Lindsay & Blakiston, 1853.

A Practical Treatise on Dental Medicine, being a compendium of Medical Science as connected with the study of Dental Surgery, etc., etc. Second edition: Revised, corrected and enlarged. BY THOMAS E. BOND, A. M., M. D. Philadelphia: Lindsay & Blakiston, 1852.

Here is the fifth edition of Dr. Harris' standard work, and the second edition of that of Dr. Bond. This is the best commendation of any work, that new editions should be called for so rapidly. The profession is so well acquainted with the merits of both these works, that any recommendation from us would be superfluous.

From the London Lancet.

DEATH FROM HEMORRHAGE CONSEQUENT UPON LANCING THE GUMS.

TO THE EDITOR OF THE LANCET:—*Sir*—Your correspondent, Dr. Whitworth, who thinks his case of fatal hemorrhage from lancing the gums to be unique,* will find a similar one communicated by Mr. Taynton to the late Medical Gazette, so far back as January, 1836, besides at least two others in the second volume of the Lancet for 1846.

Mr. Taynton,—after stating that his little patient, six months old, had the gums lanced on Sunday, and, in spite of various styptics, including, as in Dr. Whitworth's case, the actual cautery, died from the loss of blood on the Tuesday following,—proceeds as follows:

“Now, suppose such a case had occurred in a family of high rank, and the child had died, what a sensation would it not have caused! And how highly injurious might it not have proved to the surgeon's reputation! A similar case might happen again. Surely, then, it is important to know what mode of treatment would be likely to arrest the hemorrhage; and I hope that some of your able correspondents will favor us with their opinion on the subject.”

As I am not aware that this appeal to the opinion of medical men was ever responded to, though the conjecture that cases of the same distressing kind might happen again has been repeatedly realized, I beg to offer you my own ideas on the subject:—

The first point to consider is, how the occurrence may be prevented. If, as in Mr. Taynton's case, the hemorrhagic diathesis exists, no one

* *Vide* June Lancet, p. 488.

knowing this would think of scarification. It may be advisable, therefore, in every instance where that operation is indicated, and the child is under a twelvemonth, to inquire whether that peculiar constitution exists in the family. Surely, it is better to put the question a thousand times in vain, than lose the chance of avoiding that most painful of all a medical man's trials—the sight of a helpless patient dying through the very means employed for his relief.

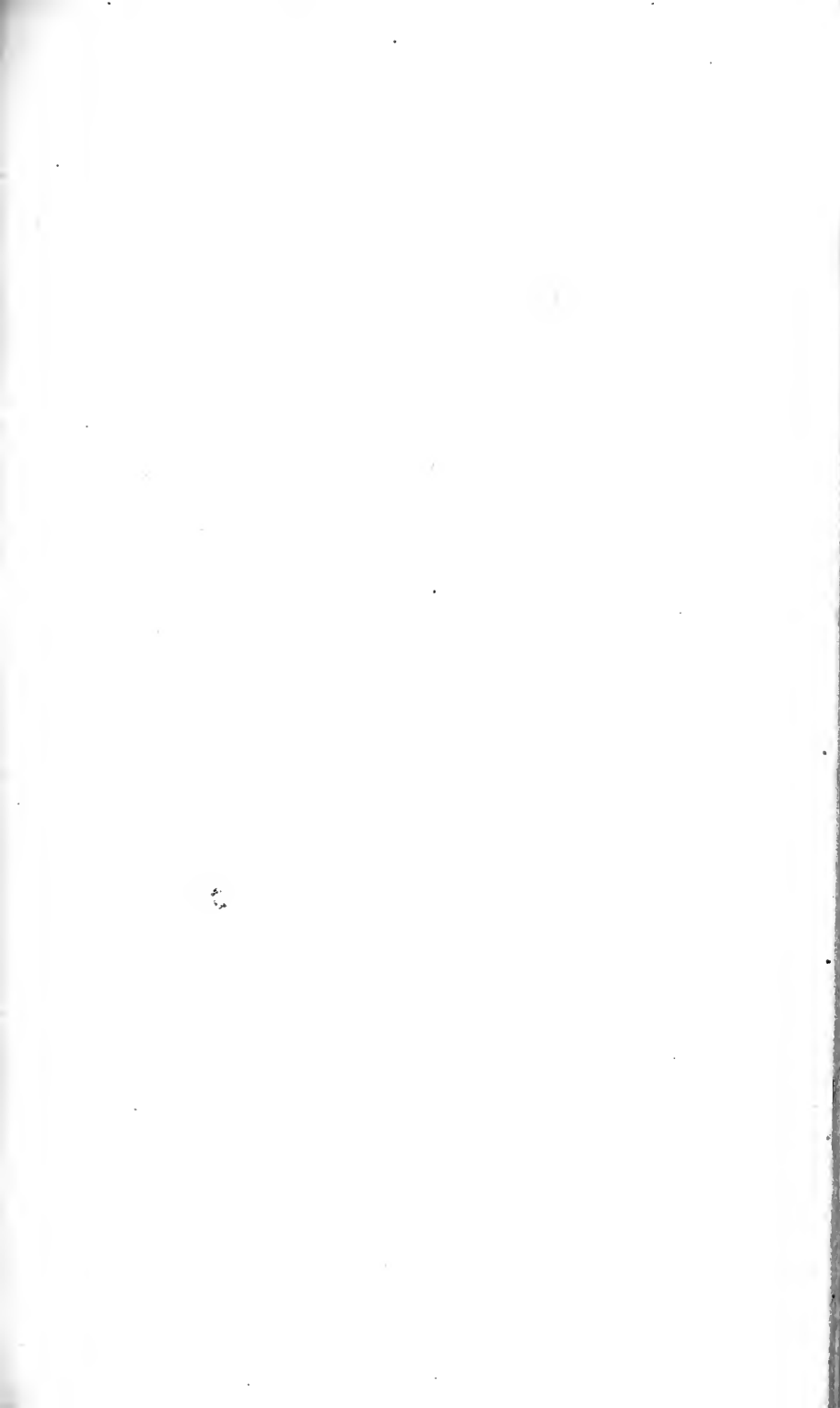
Another most important rule is to make no long incision, but if several teeth are advancing on the same line of gum, to let the scarifications be short and detached. In one of the cases I have met with in the *Lancet*, the gum-fléam had slipped from over the crown of the tooth backwards, and had separated the gum to some extent from the inner surface of the jaw-bone. This, of course, should be carefully avoided; and it will more easily be so if no long incision is attempted.

Though never so unfortunate as to meet with troublesome bleeding from any gums I myself have lanced, the symptom has occasionally come under my treatment, and I have as yet nearly always succeeded in getting it under by pressure with the finger upon a suitable compress, saturated with a strong solution of nitrate of silver. In one case only, that of Captain V——, do I remember employing the caustic in substance. That gallant officer, on the 4th of November, 1846, had been to a dentist, who had made a horizontal incision over the roots of the left upper bicuspids, which had bled the whole two miles of his walk home, and by the time I arrived had produced a considerable pallor and faintness, and filled the mouth with coagulum. After applying the compress for a quarter of an hour, with partial effect, I saw the jet of a small artery, and after touching it with a point of lunar caustic, had no further trouble. With infants, however, on account of the delicacy of their mucous membrane, and especially with those whom I suspected of the hemorrhagic diathesis, I would carefully avoid the solid nitrate of silver, for fear of secondary bleeding on the separation of the slough.

Independently of local measures, it would seem prudent to give from time to time a few drops of the tincture of ergot or other internal styptic, (perhaps the tincture of matico,) so long as hemorrhage continued; and, last in mentioning, though first to be remembered, one ought always, on learning that a child's gums were bleeding unusually, after scarification, to *attend immediately*, which appears not to have been done in all the cases reported.

I have the honor to be, Sir,

Your most obedient servant, F. A. B. BONNEY.





J. S. White, M.D.

Prof. of Anatomy, Physiology
in the Baltimore College of Dental Surgery.

THE DENTAL NEWS LETTER.

VOL. VI.

PHILADELPHIA, APRIL, 1853.

No. 3.

VALEDICTORY ADDRESS

Delivered before the First Graduates of "Philadelphia College of Dental Surgery," Feb. 28, 1853.

BY J. D. WHITE, M. D., D. D. S.

Graduates of "Philadelphia College of Dental Surgery:—"

GENTLEMEN:—The period must come, by the mutations of time, when the nearest and dearest friends and relatives must say, *farewell*; that period has come to us, and, in the name of the trustees and faculty of your Alma Mater, I am intrusted with the pleasing duty to convey to you our warmest congratulations on the successful completion of the course of studies which were arranged for you to pursue, and also to tender to you such sentiments of encouragement as may stimulate you to exertion, when the trials of the new life which this epoch opens before you would threaten to crush the spirit in its legitimate and arduous exertions. To-day witnesses the going out into the world the first graduates of the only dental college in this state, and of course is a period from which will date the workings of an influence, for good or for evil, in our beloved profession, proportionately as you impress the communities which hereafter shall be the field of your duties. We resign the good name of our calling to you, gentlemen, with a confidence that it will never suffer reproach at your hands; nay, we know full well that if the unmitigated exertions mark your career in active practice, which has characterized your period of pupilage, that we may look for large returns of valuable results in improvement of our art; and if we reflect upon the influence which the intelligence, perseverance, industry and moral character which the whole class embodies, we will realize a regard and position in society equal in rank to the best votaries of the most honorable pursuits of man.

On being summoned to participate in a regularly organized system of dental education, by the faculty of "Philadelphia College of Dental Surgery," you might naturally inquire what were the forerunning circumstances and influences which brought about the existence of such

an institution? This we will endeavor briefly to explain. In the year 1845 a few young dental practitioners believed that there was sufficient energy and talent in the dental public of this state to establish a society of dentists, by which the various interests of their avocation might be advanced and improved, and the wants of the public at large better secured. After due consultation with each other, a convention was called, so that all who wished could take part in the good work, by sending invitations to all such practitioners in the city and state whose names and residences were known to the committee who had that matter in charge. Ninety-eight circulars in all were sent, seventy to city dentists and twenty-eight to the country. At the appointed time the convention met and formed a society, by electing twenty-three active and two honorary members. The society thus founded, organized by electing its appropriate officers and adopting a constitution, by-laws and rules of order for its future government. Some who were elected to membership on this occasion did not long remain associated with this little band of reformers, so that the weight of the burden of toil necessary to push forward and sustain in successful operation so desirable an association, fell upon the shoulders of a very few; yet, with a courage and energy which knew no tiring, when engaged in labors of duty and alleviation of human suffering, those few have realized the fulfilment of the hopes and wishes of their highest aspirations. Those *few* are within the reach of the sound of my voice *to-day*. How must their hearts swell with glad emotions when they behold the full effects of their laudable exertions in bringing about so imposing and important a scene as to-day's proceedings present? I envy such emotions. *This* is the full development of the hopes entertained, and objects sought to be achieved, by the establishment of the "Pennsylvania Association of Dental Surgeons."

Shortly after the labors of the society commenced, five of its members drew up a bill, and presented it to the Pennsylvania legislature for an act of incorporation conferring collegiate powers. It went before the committee of the legislature on corporations, and was returned negative. The reasons assigned for this, to the applicants, by the chairman of that committee, were, that it was "*inexpedient, impracticable, unnecessary*, and without the consent or wish of the majority of the dentists."

But this did not dampen their energies or arrest their endeavors to bring about the development of a scheme for the improvement of their cherished art. The association took the matter in hand, and appointed a committee to petition the legislature for a charter. A petition was

prepared and presented in the usual way, signed by *seventy-five dentists of the city and state*, also by the professors of three of the leading medical colleges of the city, as well as by many eminent medical gentlemen in private practice. This petition, with a bill annexed, was read in place by a member of the legislature, and referred, but was never called up, on account of a bill of incorporation having been passed at the latter part of the preceding session, by the exertions of the Hon. J. R. Burden. This gentleman foreseeing the wants of the dental profession, had asked and obtained this charter, the merits of which he explained to the committee from the Pennsylvania Association, when he found them applying for a similar act. This was reported to the Association, who appointed another committee to confer with him in regard to what manner the ends of the society of dentists could be met. The committee found that this gentleman fully appreciated their wants, when, as a matter of course, further efforts on the part of the society were abandoned. It is under this charter, therefore, directed by the experience of the intelligent gentlemen incorporated in it, that your faculty are now acting.

Too many facts and principles are now involved in a thorough dental education, to be properly imparted and in a reasonable length of time, by a single teacher. This condition of things first suggested the establishment of dental colleges; and it would not be surprising if some of the details of the system would be found defective, like every other new business or pursuit of human life, and that sufficient time should not be allowed to remedy such defects or short comings, without meriting the censure of the cavalier at all innovations, or that they only should be laid hold of as objections to a principle in itself well founded.

The establishment and successful operation of a dental college located at Baltimore, for thirteen years, proves conclusively the utility of such institutions, and that the plan upon which it is conducted is a good one. Few useless things have so long an existence in this utilitarian age; and if it had not served the wants of the community, it would long ere this have died a *natural death*. It is believed by some that an adjunct professorship in the medical colleges will better meet the wants of the dental student than such colleges in question. It is asserted, also, that the "grand principles" of our profession cannot be inculcated as well in a dental as in a medical college. There is no foundation on which to rest such an assertion, because sufficient time has not yet elapsed to prove that the graduate of a dental college is not as fully competent to meet all the wants of his patients, as the graduate of a medical college. That many dental practitioners have qualified them-

selves up to this time, and served the wants of the community as well, who have never attended any college, as the most eminent practitioners who are graduates of medical colleges, is certain. It is constantly remarked by the intelligent part of the community, as well as by the medical teacher, that the graduate in medicine is not fully qualified, when he has complied with all the requirements for a degree, to practice his art; hence, there has been convention after convention held throughout the country, by the medical faculties, with a view to lengthen the course of studies sufficiently to compensate for the present short comings of the medical student. How utterly absurd is it, then, to look in that direction for additional aid in dental education? It is said that medical practitioners ought to know more about the teeth, and especially in relation to the treatment of their diseases. If this be true, their system of education is proportionately incomplete. But this is not a fault of the dentists. Let the public employ a dentist for such services as the physician is incapable of dispensing. It is believed by many learned members of the medical profession, that the field of his duties is already too large if he attends to all its *specialties*, and his course of education too extensive and too complicated to admit of increased additions. *This is certainly* the most rational view to take of the matter. Why find fault with the medical practitioner, because the increasing and multiplying forms of disease are entirely too numerous for him to learn in the short period of time usually allotted for the study of his art, or to properly attend to, if he were to give sufficient time to study well all the forms that human ills assume? As well might you require the merchant to learn the details of *every branch* of mercantile pursuits before he was competent to enter into any special branch of trade. The great number of maladies to which human flesh is liable, and the various and complicated forms in which they appear, will render it necessary for a sufficient number of *subdivisions* to be made, to bring their proper understanding within the capacities of men of fair abilities; and a knowledge of the teeth and their diseases will form a very *broad specialty*—sufficiently broad to engage the employment of the largest capacities to fully comprehend; and the honor and compensation resulting from a faithful discharge of all the duties belonging thereto, ought to satisfy the highest ambition of any one.

Medicine and dentistry are, doubtless, sister professions, but medicine is the older and the larger of the two; and they ought mutually to support each other, and help to push forward the large improvements of the age, so far as they have for their objects the alleviation of human suffering. That medicine is ready to render all possible aid to den-

tistry, we know to be true; and we here venture to pledge ourselves, in behalf of the faculties of the dental colleges, to supply all demands of medicine so far as our abilities will allow. In view of all this, why heed the caviler in his objections to the course we propose to pursue, or why find fault or indulge in vindictive controversies with our neighbor, if he does not, or cannot, see and believe in the utility of a comparatively new undertaking? With ourselves it is not a matter of life or death, or one in which the question of human right is involved; but merely a difference of opinion as to the best method of accomplishing certain ends in the affairs of business life.

The only question of importance in the matter, gentlemen, is, then, have we been of mutual interest to each other during the course of studies which to-day's proceedings close? If we have, then there is no cause of complaint by the most scrupulous. So far as we are concerned, it has been a constant source of agreeable study and improvement since the course of instructions began; it has required refreshing upon those living principles of our art, which the arduous details of practice are calculated to observe, and required us to make frequent excursions into the beautiful fields of collateral science, to collect such fruits as a large experience in the wants of a practitioner would enable us to bring, to lay before the young inquirer at the shrine of our beloved art. Our reward is ample for all the privation it has cost. If we take the cheerful countenances which have always greeted us when it was our pleasure to meet, and the serious and respectful attention which all were accustomed to give to the various instructions presented for their consideration, and the ability with which each one who was eligible for examination sustained himself, on the several topics on which he was questioned, as a means of judging whether you have not been rewarded, we should most certainly answer, *yes*.

The time has come when our art must be severed from the practice of medicine, in the same manner and on the same principle as the increasing importance and strength of a new colony separates herself from the rule of the mother country, to take rank among the kindred nations of the earth. The science of medicine, and its practice, leaving the study of the teeth out entirely, is already too large to come within the reach of the abilities or health of the mass of students to sustain sufficiently long to fully acquire all that is necessary by the present system of studies. The effort to sustain the grouping together of two many kindred branches of learning, has been sensibly felt in other quarters than our own; hence, the "Brown University," at Providence, Rhode Island, has successfully divided her rooms of study, and

classified such branches of learning in each suite as best apply to the wants of the future pursuits of the student.

And now, gentlemen, believe not that to-day's proceedings end your period of pupilage. It is but the portal which opens to a much broader and laborious field for exertion. There is no royal road to learning or to eminence. You are only removing to-day the barrier which prevented you from exercising an authority as practitioners; and proportionately as the burden of that department increases, added to a reasonable continuance of your studies, will your real labors become severe. *Work, work*, should be the ceaseless yearning of your aspirations; and the more you concentrate and direct your energies to build up a fund of knowledge in your own immediate profession, will you gain the confidence and esteem of your neighbors and the best in the profession. To attempt to arrive at excellence in any other pursuit in life, is sure to entail mediocrity in your own. To cultivate an understanding of, and a taste for, music, poetry, painting or politics, will do you no harm; but remember,

"One science only will one genius fit,
So vast is art, so narrow human wit."

Do not fancy that the grand results of your lives can be realized in a few months, or even years, or can be acquired without much toil and privation. The most successful in our art have been compelled to "*learn to labor and to wait.*" Place your standard high, and energy, combined with patient industry, will surmount many great obstacles; although it is rarely that these two important qualities are strongly marked in the same individual, still that is no reason why we should not realize all the advantages of their well-balanced development, if we adopt such a system of education as may have a tendency to harmonize their operation, in such a manner as to subserve our most useful purposes in life.

Again, gentlemen, when you have settled away in the remoter parts of our country, or have even become residents of a foreign clime, and have brought around you influence, honor, and additions of useful information, do not forget to turn your eyes back upon your Alma Mater. We are unwilling to give up our interest in you, and a liberal interchange of professional lessons of experience is a peculiar characteristic of a great mind and large attainments. In going from among us, some of you perhaps never to return, you take not with you the cold greetings of those who cannot feel, but the affectionate regard of those who have had few advantages to favor them in their earlier career.

There are many topics of deep interest on which we would be glad to dwell, if time would permit. The very early decay of the first teeth of children, which gives rise to so much immediate suffering, and which also impairs the general health when their disease becomes considerable, requires your most serious and kindly attention. It is your duty to enlighten the community on this important branch of your profession. It is painful to witness the sufferings of children from this cause, and the ignorance of the community in relation to deciduous teeth, is not the main fault. Dentists generally have not done their duty in directing attention to the treatment of this class of teeth. The operation of extracting has been pushed to the most ruinous extent. Palliate attacks of pain in children in the same way that you would in adults. The too early extraction of the teeth, independently of the severity of the operation, leaves the mouth bare of teeth, which disables them in the proper mastication of their food, and allows the jaws to shrink irregularly and warp the otherwise most beautiful features that ever graced the human face. Properly directed exertions with the very young, before they have been maltreated, brings them nearer to you, and makes them better patients than those who are older. In this department of surgery, it is as much your bounden duty to protect the proper development of the features of children, as it is to alleviate pain. Think with the sweet poet Gray, and

“Hold it a religious duty
To love and worship children’s beauty :
They’ve least the taint of earthly clod,
They’re freshest from the hand of God.”

We cannot refrain, in conclusion, and in behalf of the faculty, from expressing our highest considerations for those eminent dentists of our city who, by their aid and presence during the course we have passed through, have cheered us on in our labors. We need no higher proof of the utility of our school, or that our exertions have been properly appreciated; and in return for the confidence they have reposed in us, who have been selected to protect the educational interests of the profession, we pledge ourselves never to leave the helm of the bark which we have been appointed to command, as long as there is a plank in her deck, until her voyage shall be no more a doubtful experiment, but a recognized principle and irrefutable *fact*.

For the Dental News Letter.

EXTRACTION OF TEETH.

BY A. M. HOOKER.

We are well aware that great improvement has been made, within the last few years, in the manner of performing this operation. It is attended with far less pain now than in former times; and the serious accidents which were once so common in the extraction of teeth, are now comparatively unknown. The credit of this improvement is due to the dental profession. And well may they rejoice that they have been enabled to do so much towards lessening the sufferings of their fellow men.

But while we glory in past achievements, let us not forget that our work of improvement is not yet finished. We have not yet reached the summit of perfection. We seem too prone to rest satisfied with what has already been done, forgetting that much is hereafter to be accomplished in lessening the pain of this operation. While our minds are occupied with the various improvements in other departments of our art, we are in danger of neglecting an operation, which many seem to look upon as unworthy of but a small share of their attention. But if we consider the amount of pain which usually attends the extraction of a tooth, and the multitude of cases in which the operation becomes absolutely necessary, we must admit that it is by no means a matter of little importance. Every operation should receive the full share of attention to which its importance entitles it. Neglect of this rule will destroy the symmetry of our art, and prove a detriment to its interests. The capabilities of the dental art can be fully developed only by bestowing upon each operation, as well as each department, an amount of culture in exact proportion to its importance. It is to be hoped, then, that the profession, encouraged by the success of past efforts, will press forward with renewed zeal, to attain the highest possible skill in the extraction of teeth, as well as in every other operation pertaining to dental practice. For our encouragement, we may remember that skill in no operation is so likely to call forth expressions of our patients' gratitude as in this.

We are glad to see in the last number of the "Dental Register of the West," the first of a series of articles on this subject, by Dr. J. Taylor. We wish others, among the older members of the profession, would follow his example, and favor us with some of the many interesting and instructive cases which have occurred in their practice, with the principles they have deduced therefrom. By so doing, they would confer a benefit upon the younger members of the profession, for which

they would be sure to receive their hearty thanks. To our older brethren we look for instruction; and we hope they will not deny our claim on the lessons of wisdom which they have derived from their experience.

We need not fear that if we aim at a higher degree of skill in this operation than has heretofore been attained, physicians and surgeons will look upon us with a jealous eye; for they are evidently becoming willing that the dentist should have the sole proprietorship of the operation. We may consider the field, then, as fairly ours. Perhaps certain quacks, who have occupied a portion of the ground, may be loth to yield their claim. But they may be compelled to lay down their turnkeys—the instrument with which they have been wont to make sad havoc among teeth and jaw-bones—and leave the field to its rightful possessors. The quack cannot hold out long against the scientific operator. People will soon ascertain the difference between fractured jaws and confused gums, and having teeth extracted without being tormented with these disagreeable accompaniments. Quackery cannot live beside science, for her unseemliness is then fairly exposed. When the broad beams of science fall upon her face, with a blush she turns and flees to some unilluminated spot.

If, then, we may have undisputed possession of the field, let us cultivate it, and reap from it what laurels we can. Every improvement which shall render this operation less painful, will be hailed with joy by the public, and its author will be rewarded with the gratitude and confidence of the community.

If we would be able to extract teeth with the least possible pain to the patient, and risk of injury to the neighboring parts, two things must receive our special attention.

First. The anatomy of the teeth and maxillary bones.—The human system is too delicate a machine to make it safe for one to operate upon any part of it, unless he understands the structure of that part, together with the various relations which it bears to other portions of the system. The teeth are no exception to this general rule. We have proof of this in many cases of serious accident and severe suffering, resulting from the rash attempts of operators destitute of such knowledge. Such cases will occur to the minds of every dentist; but I will give the following, which is related by D. Orville Crane, of Geneva, N. Y., and occurred in the year 1839. He says: “The subject of it, a boy of seventeen years, submitted an aching tooth to be extracted by an individual whose skill might, perhaps, be doubted, if results have any weight in deciding the matter. I saw him eight and forty hours

after the accident, during which time he had had no sleep nor rest. On examination, I found all that part of the jaw commencing with the first bicuspid and running back, was broken off; five teeth were involved in the fracture, all connected and hanging loose in the mouth, supported simply by the surrounding integuments." Such cases do not occur in the practice of prudent and scientific dentists. Rashness is one of the characteristics of ignorance; and the quack in his blindness ventures, without fear, where the man of science dares not approach. We were told by a pump maker, sixty-three years old, not burdened with a superabundance of common sense, that he "used to pull teeth." He had a straight key, and his gum-lancet was the point of a jack-knife, fastened at nearly a right-angle into a piece of bone. He was frank to acknowledge that he sometimes "broke the jaw." We believe the time is at hand when these "jaw-breakers" will be obliged to retire from practice.

A knowledge of the anatomy of the teeth is necessary to enable the operator to judge what instrument may be employed to the best advantage in extracting any tooth. Diversities in the shape of teeth, and in the situation of their roots, require different shaped instruments; and the operator should be able to tell, by the class to which a tooth belongs, the number and situation of its roots, and choose his instrument accordingly. It is true, there are many peculiarities in the shape of the teeth; but there is generally sufficient uniformity in the teeth of each class to enable the dentist to choose such an instrument as is best adapted to their extraction.

Second. Extracting instruments and their use.—The success of this operation depends very much on the instrument employed. To the improvement in instruments we are chiefly indebted for the greater ease with which teeth are extracted now than a few years since. It is settled that forceps are, for nearly every case, the best instruments which have ever been invented. But there is great difference in the character of forceps, some of them being wholly unfit for use. There is still room for improvement in these instruments, notwithstanding the degree of perfection to which they have been brought. Elevators and screws are sometimes of great use, and there are cases in which we believe the key, notwithstanding it is so universally condemned, may be used to greater advantage than any other instrument. Such cases, however, are very rare.

But it matters not how perfect instruments we possess, unless we know how to use them properly. Such knowledge can be acquired only by study, observation and experience.

The dentist should know *when* as well as *how* to extract a tooth, and be prepared to meet any unpleasant contingency, as profuse hemorrhage, which may follow the operation. These require a knowledge of the pathology of the teeth, and their relation to other parts of the system, and some acquaintance with therapeutic agents. We see that even this operation, which is considered one of the most simple in dental surgery, requires a considerable amount and variety of information to enable one to perform it in a proper manner.

Bristol, Ct., Feb. 1853.

For the Dental News Letter.

SOLDERING TEETH.

MESSRS. EDITORS :—There appears to be a desire on the part of some of the profession to get the best method of soldering full sets of teeth. As you appear to be willing that the subject should be agitated still farther, I take the liberty to send you a plan which I think has some advantages over any that I have seen published. When the work is ready to put in plaster, take a piece of German silver or platina plate, about No. 30 or 32, six inches long and one and one-half inch wide, cut one side full of slits, one-half inch deep and one-fourth inch apart; bend the strip in a curve to fit the outside of the teeth, leaving as little space as possible; bend the serrated ends under the edge of the plate; either cut off the part which extends beyond the plate, or trim the ends to a point and curve them under the plate. Wet up a little plaster, rather thin, spread a thin coating over the inside of the German silver plate and a thin coating over the outside of the teeth; put them together, and put a little more plaster on the points of the teeth; let it stand until the plaster is set, so that the wax can be removed without loosening the teeth, and your work is ready to solder. Heat slowly on the outside until the moisture is evaporated, and solder with as little heat as possible, and have the solder flow smooth. There being no plaster under the plate, but little heat is required to solder it, and can be easily accomplished in fifteen or twenty minutes with a blowpipe. Plates soldered in this way never spring, unless more plaster is used than is required to hold the teeth in their places, and the teeth are always found in the same position that they were when put into the plaster. I have soldered all my work in this way for five years, and would not ask for any better plan. The less resistance there is to the expansion of the plate while being heated, the less likely it is to spring.

L. C. WHITING.

Detroit, Mich.

For the Dental News Letter.

CASE OF EXTRACTION, WITH FRACTURE AND REMOVAL OF THE BASE OF THE ANTRUM.

MESSRS. EDITORS:—I send you the following account of a very serious fracture of the jaw, which you may publish in your valuable "News Letter," if you deem it worth the trouble.

Mr. — called on me, the 30th ult., to have a second molar in the superior jaw extracted, stating that it was very loose and caused him great pain. The first molar adjoining had been extracted the day before, and the dens sapientia not having made its appearance, the tooth stood alone. He requested me to feel how loose it was; but on touching the tooth for that purpose, he gave a quick start from pain, and not wishing to prolong his agony I seized the tooth, when immediately, and before I had exerted the force which I supposed would be necessary, I discovered that a large piece of the alveolar process was loose. Blood flowed profusely from the nostril on that side of the face, which somewhat frightened me at the time. I then stated the facts of the case to him, and advised him to have the piece removed, which he consented to do. So, calling on an eminent physician, we proceeded at once to the task, which was rendered very tedious by the frantic state of the patient. Dr. — dissected the gum up to the edge of the fracture on the labial side, and then introducing his finger, he turned the piece down, and completed the detachment by a pair of scissors on the palatal side. The tooth continued firmly attached to the piece. The piece extracted was an inch and a half in length by an inch in depth. The fracture commenced immediately in front of the tooth extracted, at right angles to the median line of the mouth; thence upwards to and including the floor of the antrum highmorianum; thence along the walls of that cavity backward, so that the entire process which envelopes the roots of the second molar and dens sapientia was removed, up to and including the floor of the antrum. The walls of the antrum were no more than twice the thickness of letter paper, and supposing the perpendicular fracture made, it would not, I think require but half of the force ordinarily employed in extracting a molar to continue the fracture backward to the end of the process. If this thinness of the walls of the antrum is a common case, it is a wonder that with the prodigious power so often exerted by a powerful man in the use of the key, the entire process is not oftener removed. I do not think that any blame can attach to the physician who caused the fracture by the extraction of the first molar, for he had undoubtedly become emboldened by the exertion of as much force a thousand times before. After the

removal of the bone, we advised him to be very careful about exposing himself, and to rinse his mouth frequently with brandy and laudanum, two parts of brandy to one of laudanum. Not feeling much inconvenience he left next morning for New York, and I have not heard from him since.

Yours truly,

S. T. BARRETT.

Port Jervis, Orange Co., N. Y.

For the Dental News Letter.

MY DEAR MR. JONES:—A few days since I received from you, through our mutual friend Mr. West, some excellent tooth-drawing instruments. Please accept my sincere thanks, and I would gladly transfer to you, if it were possible, some of the thanks of the people whom it is often in my power to relieve. You will be glad to know that the instruments are not useless. Within the first ten or twelve days after their arrival I extracted eight teeth, some of them large, requiring the large forceps. Many thanks too for the pamphlet. I have derived many useful hints from it. You must know that I am a perfect tyro at the business, having been pressed into the service by sheer necessity. Multitudes of the people, coming from a great distance in some instances, seek from us relief in all surgical and dental cases, which their own physicians never pretend to afford. As a people they are quite careful of their teeth. All classes clean them before eating, rubbing them with a clean twig broken fresh from the tree. They are superstitiously exact in this matter, never, as they say, defiling their mouths by putting any thing a second time into them. But, from some cause, their teeth often ulcerate at the roots, which produces a constant discharge through the cheek. On extracting the tooth the ulcer heals directly. I have relieved a great many such cases. Such teeth are not difficult to draw, often becoming quite loose.

But I need not encroach upon your time by any extended observations, being so incapable of making any that would be of much interest. My principal reason for wishing to do any thing to relieve the people's pains, is the more ready access it gives me to their hearts. A little knowledge of medicine is almost invaluable to a missionary. Their diseases, it often seems to me, are less complicated and more easily cured than those of more civilized people.

Again I thank you for the instruments, and trust your gifts will never be less highly appreciated.

Most truly yours,

J. E. CHANDLER.

Sivagnnga, Southern India, April 2, 1852.

[We take the following extract from a private letter, addressed to our house in Boston, on dentistry in the "Azores."

The method of filling teeth, as described, agrees precisely with the method practiced at Santa Cruz, (one of the West India islands,) as related to us by an American dentist, who visited there some years since. If we had our choice in such a case, we should prefer extraction.

There is a wide field abroad for American dentists, where fortunes and honors may be secured.—ED.]

DENTISTRY IN THE AZORES.

MR. FREEMAN—*Dear Sir*:—Knowing the interest felt relative to the success of American dentists residing abroad, I take the liberty of addressing you a few lines, trusting they may be acceptable.

You will be surprised when I inform you that, previous to my establishment in the "Azores," the people were almost entirely ignorant on the subject of dentistry; and at Fayal (the first of the group which I visited) they had so little faith in my abilities, that for the first few months I was obliged to content myself by merely displaying my assortment of teeth, instruments, &c.; but after I had inserted a complete set of artificial teeth for an English lady, I succeeded in obtaining the confidence of the public, and they were then so anxious to avail themselves of my services, that I was allowed to practice without passing the examination required by law.

My method of inserting teeth, from one to a whole set, without springs or clasps, astonished them exceedingly; and when they witnessed some of my large gold plugs, in teeth which they considered impossible to preserve, and which I had been requested to extract, their admiration was increased.

Through the influence of the physicians, I was enabled to introduce the use of chloroform and ether, for the alleviation of pain during the extraction of teeth; and as they were almost always present at such times, I very soon convinced them of the safety of anæsthetic agents when properly applied; so much so that they made use of them in the hospital and their private practice.

When I came to this city I found the people very timid in regard to dental operations, and notwithstanding I brought the very best of recommendations, I had considerable trouble in obtaining the favor of the public, who were prejudiced against me, owing to the sayings and doings of a Frenchman, who calls himself a dentist, (?) and says he studied with one of the first professors in Paris. Dentistry must be in a primitive state in Europe, particularly in France, if I may judge

from some specimens of his production. Why, an American student of a month's experience would be ashamed if he could not do better. I think I shall succeed in securing one of the specimens; if so, I will send it to you as a curiosity.

His manner of plugging teeth is certainly original. As yet I have heard of but one person who was able to bear the operation. A man applied to him to have one of his inferior molars plugged; the cavity was prepared, and a piece of lead or tin, (perhaps fusible metal,) of the size required, was placed in the tooth, a hot iron introduced into the mouth, and the substance melted into the cavity, causing such intense suffering that it can be better imagined than described.

He knows nothing about inserting teeth by means of atmospheric pressure, and actually declares that it cannot be done, although I have inserted several sets, to the entire satisfaction of the patients.

My success in curing diseases of the gums has created no little surprise, and many of the physicians are so much pleased with my mode of treatment, that they now send their patients to me when there is any derangement of the dental organs.

I might relate several interesting incidents connected with my practice in these islands, but must defer it to another time.

Very truly yours,

W. C. STARBUCK, JR.

Cidade de Ponta Delgada, San Miguel, Oct. 20, 1852.

For the Dental News Letter.

CASE OF NECROSIS OF THE TEETH FROM MERCURY.

MESSRS. EDITORS:—On the 22d of February, 1850, I was called to examine and operate for a little daughter of a Mr. F. Henderson, of Papersville, Tenn., aged some seven or eight years, who had just recovered from a severe attack of intermittent fever, and had been during her illness salivated severely. On examination I found the left cheek inflamed considerably, the gums having sloughed off so as to leave the inferior and superior maxillary bones entirely exposed to view, the former being exposed from the socket of the left cuspidati or canine to the anterior wall of the socket of the second molar, containing five teeth.

The entire part thus affected had to be removed, which was done with a pair of common cutting forceps. After its removal there was considerable discharge of an offensive foetid matter.

The alveolar process of the latter was also considerably affected, so as to require the removal of the first and second bicuspides, together with the process containing them, which operation was followed by a discharge similar to the other. The portions removed were entirely

destitute of life or vitality, and on their external surfaces there appeared every evidence of the action of mercurial medicines; and to their influences I attribute the cause of the suffering and consequent deformity of the patient.

After the operation was complete, a wash was prepared from a decoction of the common white oak bark, with an occasional washing with a very soft brush and castile soap. The parts rapidly healed, but there is still a deformity, which I fear cannot be removed by the application of artificial teeth, &c.

Such is the history of what I should term a necrosis of the superior and inferior maxillary bones, caused by the improper use or administration of mercurial medicines.

Gentlemen, what I have written is at your disposal. I am not in the habit of writing communications for the press, and if the present is not well digested, please excuse, correct and use as you may think proper.

Yours respectfully,

R. E. GRANT.

Glade Spring, Washington Co., Va.

[A drawing accompanied this communication, a cut of which we deemed unnecessary, as the description, as above given, is made sufficiently plain and explicit.—ED.]

[We have been written to, as will be seen by the following communication, for information on a subject somewhat beyond the limits of dentistry proper, and as the articles required are not merchantable goods, we were unable to give the desired information.

We cannot but admire the dauntless enterprise of the writer, and trust he may never again have any thing so difficult to make as artificial "lips and noses."—ED.]

ARTIFICIAL LIPS AND NOSES.

MESSRS. JONES, WHITE & McCURDY:—Having been applied to by a gentleman for a job of work, I take the privilege of making a few inquiries concerning it. The case is this: The gentleman wants an artificial nose, lip, and a set of artificial teeth. I would like to know from you what an artificial nose and lip would cost. I can answer about the teeth.

I would also like to have some information about the best manner of putting up the job. If you can give me any information, I would be very thankful. I have never seen any thing of the kind put up, and am at a loss in what way to do it. I would like very much to do the work is the reason of my making the inquiry I do. Yours, &c.

For the Dental News Letter.

Method of Making sets of Teeth with Continuous Gums, as practiced by C. F. DELABARRE, from his work, published 1820, entitled "Traite de la Partie Mechanique de l'art du Chirugien-Dentiste." Vol. I., Chap. iv., Art. iii., pages 235 to 243 inclusive.

Translated by Dr. F. Badarague, of Va., and corrected by Dr. E. Wildman, of Phila.

As the discussion as to priority of discovery of a compound for this purpose has been going on, this may afford some new light on the subject, and we may add that in a recent letter from Dr. T. W. Evans, of Paris, he informs us that such work was made there twenty years or more since, and promises us specimens of it by the first opportunity. —[ED.]

Combination of the Preceding Methods for the execution of pieces in a Continuous Series.—I have given an account of the methods of three assiduous authors to imitate the human teeth by means of vitrifiable substances; but after having weighed the advantages and defects of each system, I will invite the attention to a species of work in which there are great advantages—it is only a combination of theirs.

We know that by following the method of M. de Chemant, we are able to imitate the festoons and shade or tint of the gums. But we must also note that the work produced by this author is opaque, and is wanting in that translucency, and that pearly, bony tone, which is the great merit of the natural teeth.

On the other side, M. Fonzi, the inventor of terro-metallic teeth, was himself the first to feel these defects; he sought as a means of remedying this defect, by covering the sets of teeth with a layer of jewellers' enamel, with the color underlaying or painted on its surface.

I was equally beguiled with this idea, and occupied myself in putting it into practice in 1815; but all the artificial gums made in this manner, although done by expert enamellers, as well as that which was executed by myself, became, after a very short time, blackened, impaired and sealy. Thus we were compelled to discard jewellers' enamel; in addition, it being so much softer than the porcelain, it has not consistence enough to resist the wear to which it must of necessity be submitted; it is therefore that it breaks with such facility that it is not without danger, perhaps, of the patient swallowing it.

Nevertheless, the acknowledged beauty of the Colliodontes (porcelain teeth) causes them to be preferred to every other composition. It remains a problem, very interesting to solve, which consists in finding the means of making sets of teeth which shall have gums as those made by M. de Chemant, and the teeth having at the same time the

translucency which distinguishes those which are made by M. Fonzi. I think I have solved the problem, and it is its solution which is made the subject of this article.

§ 1.—I at first imbedded the teeth in a paste of the tender porcelain of Sevres. I mention this method only for the reason that it was the first which I employed; but the difficulty of procuring this paste added to the repugnance I felt in making use of a material which, containing arsenic, might prove dangerous should it not be sufficiently vitrified; and besides the disadvantage arising from the difficulty of fastening in it the *cramps and eyes* (by which the teeth are united together,) because of their running together by the melting of the paste or to become deranged, determined me to use an effort to obtain a mixture which, whilst it should semi-vitrify at a lower heat than that used in baking the hard porcelain, it should, however, possess the requisite quality of great strength.

The works of Rome de Lille, of Wedgwood, of Count de Milly, &c., were my guides in my researches.

In reading these works, I learned that the porcelain of China, that of France or of Saxony, and of other countries, are composed of *kaolin*, an earth or clay of a light yellow color and infusible: of *felspar*, a kind of flint stone, very white and transparent, and also of *mica*, or of *gypsum* (crystalised plaster.) I remarked that one of these last articles served as a flux to the others, and in the greater proportion it was in the mass, the more easily the porcelain vitrified. From hence I conceived the idea of adding to the ordinary porcelain paste a sufficient quantity of gypsum, or of mica, to augment its fusibility, so as to be able to bake it in the air furnace of which the design is given in this work.

The following composition embraces all the conditions required:—Porcelain paste, 7 parts; calcined gypsum,* 1; white sand, (quartz,) 1-20th of the mass; such oxide as you desire, 150 gram. per kilo. Grind perfectly fine.

Having obtained the result sought for, I make the following application of it; committing to the genius of the artist the variety of the means by which it may be executed.

§ 2.—*Mineral Veneering, or Inlaid Work.*—I make use of very thin teeth without cramps, (platinas) which have been baked at the heat of the porcelain furnace. I give them the proper form of teeth on a grind-stone; therefore this is a kind of inlaid work.

* The more you add of gypsum, the more fusible the paste will be.

When I wish to make a set of teeth with gums, I take the above-mentioned paste and place it upon the model, and then let it dry; after which I cut in the front of it little excavations, in which I fit the teeth, gluing them there with a little gum water; I set them with a small strip or roll of the paste, which I carve in imitation of the festoons of the gums; after which I cover it with a light coat of porcelain enamel, equally fusible by the addition of gypsum, and sometimes a little of the crystal of *Mont Cenis*.

These teeth unite with the base so firmly that, after having been baked, the whole may be broken by a blow, but the parts already united will not be separated.

It is well to secure the solidity of a set when it is of some considerable size, by attaching to it, before baking, a band of platina extending throughout its whole length, which would prevent the work from falling to pieces, should it crack in the furnace, and it would also facilitate its reunion by the application of enamel and a repeated baking in the furnace. Again, if one or more of the adjusted teeth should become deranged, it would be easily cut off on a lapidary's wheel, and another substituted in its place.

This accident, however, may be foreseen, and avoided by supporting the work in the same manner as do the workers in porcelain, who execute work infinitely more delicate than the porcelain work of dentists.

§ 3.—*Artificial Gums Applied and forming a Base*.—If the teeth have been arranged and soldered with fine gold to a strap of platina, they may be imbedded in a sufficient quantity of the paste indicated in the preceding paragraph, so as to form a base, the thickness, length and size that is required to make an artistical piece of work. Thus we shall have a perfect imitation of the species of work done by M. de Chemant with the kind of mineral teeth which, at the present time, are acknowledged as the best imitation of nature.

I very frequently use this mode of procedure for the manufacturing of pieces destined for the inferior maxillary. When it is necessary to use ligatures, I make holes in the piece. And when I intend soldering to it metallic pieces, I insert cramps of attachment (platinas) in the proper places.

§ 4.—*Artificial Gums inserted between a Metallic Base, or Plate, and the Teeth*.—After having mounted a set of teeth on a plate, I apply the abovementioned paste to the backs of the teeth and between their interstices, so as only to form the points of the gums in front, and an inclined plane in the back part of the teeth. When there exists a

great absorption of the alveolus, I first solder pivots to the stamped plate; after all the teeth have been ground to their proper dimensions, they are arranged on the pivots by means of the little eyes (platinas) inserted in their backs, taking care that the masticating surface shall correspond with the antagonising teeth, after which they are to be soldered. They are then to be tried in the mouth; there correct their defects, which can readily be done, for it is only necessary to bend the pivots, in order to give the teeth the required inclination. I may add, by the way, that this mode is of very great advantage. Afterwards solder to them a band or circular bar, which, whilst it retains them in their proper places, adds surprisingly to the solidity of the whole work.

Now fill in the space between the base of the teeth and the plate with the paste. This must be baked before the enamel is put on, for as much as flaws always open in many places in baking. These cracks are to be filled with new paste. The armature (plate) may be extremely thin, and consequently will be much lighter in pieces of considerable extent, and requiring little height; particularly when there shall be some sound teeth remaining, inasmuch as they should always be preserved for the benefit of the patient.

The paste which is placed in the interstices unites with the surrounding parts, forming one solid mass of the whole, imparting much beauty to the work.

To recapitulate, it will be seen that by the addition of a mineral flux, the porcelain material (paste) is rendered much more fusible than that of our porcelain manufactories. Dentists may therefore avail themselves of this information, as well for the purpose of baking in furnaces of their own as for imitating the gums. In the last case, the teeth, which have been baked in the furnace of the porcelain manufacturer, will undergo no alteration when exposed to the heat which it is requisite to employ in their own furnaces.

Lastly, with the porcelain paste softened and prepared in the manner I have spoken of, to which has been added the proper oxides, sets of teeth can be made in the method as done by M. de Chemant; and they have the advantage of being transparent. I employ this method particularly when I wish to make pieces containing only molar teeth. This preparation stands the heat of the soldering lamp perfectly well, and is no more liable to crack than the (calliodontes) ordinary porcelain teeth themselves.

§ 5.—*Application of the Gum Color.*—I have already shown the manner of painting the gums upon the enamel according to M. de

Chemant's method; but experience has taught me that the friction of the lips and the secretions of the mouth dims at first, then gradually destroys the superficial coloring.

I had recourse to the following method: I baked the piece in biscuit, that is to say without putting on the enamel, then I painted on the color and vitrified it. In withdrawing it from the fire it was dull, but I gave it brilliancy by covering the painting with a glaze made of the crystal of *Mont Cenis*, which I caused to fuse evenly. The saliva having no longer any direct action on the color, I should have been satisfied with this method, if it had not required several bakings and much time; I therefore adopted the following method.

In the first place I bake the base; if any crevices are opened in it I fill them with paste a little more fusible than the first, and now I give it a coat of enamel, the fusibility of which corresponds with the degree of heat required to semi-vitrify the base. I incorporate in it a small quantity of the muriate of gold (ter-chloride of gold.) I place it in the muffle, and stop off the heat as soon as I have obtained the required shade, for it is important to bear in mind that the longer the work is submitted to the action of the heat, the lighter will be the color.

For the Dental News Letter.

REPORT OF THE ORGANIZATION OF THE DENTAL ASSOCIATION OF ALLEGHENY COUNTY, PA.

In compliance with an invitation of several members of the dental profession, an assembly, composed of a large majority of the dentists of Allegheny county, met at the house of a member of the profession, in Fourth street, Pittsburg, at seven o'clock, P. M., on the 2d of Oct. 1852.

On motion, it was resolved, that J. Scott, of Pittsburg, preside at the first meeting as Chairman, and M. Depuy act as Secretary.

The meeting was then called to order by the President. By request, the letter of invitation calling the meeting was read, and the objects of of it stated by the Chair.

A general discussion ensued, on the expediency of making an effort to form an organization for the improvement and elevation of the Dental profession in this vicinity.

On motion, it was then resolved, that a committee of three be elected to draft a constitution and by-laws, to be submitted for consideration at a future meeting.

The following committee was then elected by ballot:—W. M. Wright, W. F. Fundenberg and Wm. Bachop.

After some further discussion, on the best methods of conducting an association, the meeting adjourned until Oct. 16th, at half-past 7 o'clock, P. M., to meet at the same place.

Oct. 16, 7½ P. M.—An assemblage of the Dental profession convened, according to adjournment.

The meeting was called to order by the Chair, when the committee elected to draft a constitution and by-laws, presented their report.

On motion, it was resolved to take up the articles of the constitution and by-laws separately, and, after canvassing their merits, adopt, amend, or reject them, by vote.

The constitution and by-laws, after being amended in a few particulars, were, on motion, declared to be adopted as the constitution of the "Dental Association of Allegheny County, Pa."

On motion, it was then resolved, that the meeting go into an election for officers, according to the provisions of the constitution, for the ensuing year.

The following gentlemen were then elected, by ballot:—DR. W. M. WRIGHT, President; John Scott, Vice President; M. Depuy, Secretary; Robert Vandevort, Treasurer.

An Abstract of the Constitution and By-laws.

The name of this society shall be, "*The Dental Association of Allegheny County, Pa.*"

Application for membership must be made in writing, and be acted on at the next ensuing meeting. Three-fourths of the ballots cast shall be necessary for a choice.

The officers of the Society shall be, a President, Vice President, Secretary, and a Treasurer.

The duties of the above are the same as are usually incident to the same in other societies.

Duties of Members.—The members are enrolled in alphabetical order. Each member, in the order in which his name occurs, reads before the Society, an essay on some subject connected with dentistry, so that there shall be at least one essay read at each stated meeting of the Society.

The stated meetings of the Society are to be held on the first Saturday of each month, at 7 o'clock, P. M.

The stated meeting in October, shall be considered the Annual Meeting.

No member of this Association shall patent any instrument, or invention, that might be of service to other members of the dental profession.

No member of this Association shall take a student for a shorter term than two years.

The above abstract presents some of the leading features of the constitution and by-laws of the Society. The meetings, thus far, have been well attended and interesting, and it remains to be seen if it will fulfil the expectations of its founders, and allay animosities and promote a feeling of good-fellowship among the members of our profession in this region.

Yours,

M. DEPUY.

Pittsburg, March 5, 1853.

For the Dental News Letter

THE ALUMNI OF THE PHILADELPHIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, February 28, 1853.

A meeting of the alumni of the Philadelphia College of Dental Surgery, was held in the lower Lecture Room of the College. There were present—Drs. James S. Gilliams, of Pennsylvania; George W. Emerson, of Washington City, D. C.; John Scott, of Conn.; Henry Garrett, of Del.; S. Townsend Brown, of Penn.; and Arthur B. Williams, of Washington City, D. C.

The meeting was organized by choosing DR. JAMES S. GILLIAMS Chairman, and Dr. Arthur B. Williams Secretary.

The minutes of the preliminary meeting, held the 26th inst., were then read.

On motion of Dr. Garrett, seconded by Dr. Scott, the meeting went into ballot for officers of the Association for the ensuing year.

The ballots being taken, the following officers were chosen:—JAMES S. GILLIAMS, M. D., D. D. S., President; Henry Garrett, D. D. S., Vice President; Arthur B. Williams, M. D., D. D. S., Secretary; George W. Emerson, D. D. S., Treasurer and Librarian.

The Secretary then read the Constitution and By-laws, as reported at the informal meeting of the 26th inst.

On motion of Drs. Emerson and Brown, they were adopted as read.

Dr. Henry Garrett was then chosen to read an essay on some subject connected with the profession of dentistry, at the regular meeting of the Association, in 1854; and Dr. Arthur B. Williams was chosen to read the opening oration at the same meeting.

On motion of Drs. Williams and Garrett it was *voted*, that any officer of this Association, on resigning his office, shall, unless otherwise provided by the constitution and by-laws, designate some member of the Association to act for him until the next regular meeting, when a successor shall be chosen.

On motion of Drs. Garrett and Scott it was *voted*, that the minutes of the preliminary meeting, held the 26th inst., be inserted in the record book, with the other proceedings of this Association.

On motion of Drs. Garrett and Brown it was *voted*, that the minutes of this meeting be published in the Dental News Letter for April.

The meeting then adjourned.

ARTHUR B. WILLIAMS, Secretary.

RISODONTROPY; OR, TREATMENT OF EXPOSED NERVES.

BY C. O. CONE, M. D., OF BALTIMORE.

[Continued from page 122.]

CASE 5th. *Sept. 27, 1851.*—Mr. C., of New Orleans, aged about 30, of nervous bilious temperament, and in the enjoyment of general good health, consulted me in relation to the first right inferior bicuspid, which had been plugged on its anterior approximal surface. The plug had fallen out. The tooth had given no pain. The excavation of the cavity gave not much pain, but yet it was sensitive to the use of the excavator. I exposed the nerve at a small point, and blood flowed from its vessels. Performed Hüllihen's operation on the tooth. This was not attended with much pain. After the operation some sensation could be felt on exhausting the atmosphere from the cavity, but not that pain which attended the same effort before the performance of the operation. The nerve is still sensitive to the touch of an instrument when brought in contact with it. No pain was felt, however, on the introduction of a plug.

Oct. 6.—Saw Mr. C. to-day. He had felt no symptom in the tooth operated on, marking it from any other tooth in the mouth. The tooth is not sensitive to pressure. No inflammation in the gum, the puncture through the same by the drill cannot be detected by the eye. Mr. C. leaves for New Orleans to-morrow.

July 20, 1852.—Had an opportunity of examining the tooth of Mr. C. It presents every appearance of vitality. Gum is healthy about the tooth. No marks of the puncture except a perceptible thickening of the alveolus at just the point where the puncture was made. The patient says he has experienced no sensation in the tooth which would direct his attention to it, and that "the tooth now feels like a live tooth."

CASE 6th. *Sept. 30.*—To-day I exposed the nerve in excavating a cavity on the anterior approximal surface of the superior left central incisor, for Master H., aged 14, of a bilious nervous temperament.

The portion of the nerve exposed was not large. No blood followed. Performed Hüllihen's operation. The exhaustion of the atmosphere from the cavity, after the operation, gave no pain, which was acute when a vacuum was made in the cavity before the operation.

Oct. 1.—Master H. does not complain of the central incisor operated on, nor does he feel any change in the tooth, and only a little soreness of the gum. Tooth presents a healthy appearance—little or no inflammation about the gum. The tooth is not sensitive to pressure applied in any direction.

Oct. 3.—Master H. complains of occasional pain being felt about the tooth. Pressure on the crown gives a slight sensation of pain or rather uneasiness. His gum slightly inflamed about the puncture.

Oct. 27.—Master H. informs me to-day that the pain and soreness of the incisor operated on have subsided. No uneasiness or discomfort is experienced. Puncture through the gum has closed. No inflammation in the soft tissues. The crown of the tooth shows the complexion of vitality.

Feb. 6, 1852.—Master H. called to-day in relation to other teeth, and I examined the incisor operated on for exposed nerve. It has every indication of health. Has not given the patient any uneasiness since October. No mark of the operation to be seen about the gum.

CASE 7th. Oct. 7, 1851.—Mr. R., of a sanguinous nervous temperament and general good health, aged about 19, desired me to fill the anterior approximal surface of the second right superior bicuspid. In removing the diseased dentine from the cavity, the nerve was exposed, and its vessels bled freely. The exposure of the nerve was attended with considerable pain. I performed Hüllihen's operation. In doing this the very point of the cutting edge of the drill broke off. I think this occurred at the time the drill entered the nerve cavity. No pain, after the operation, was felt on exhausting the atmosphere from the cavity. The nerve was, however, sensitive to the touch. Plugged the tooth, with the expectation of a failure. No pain was felt in the tooth after it was plugged.

Oct. 8.—Mr. R. called to let me examine the bicuspid operated on yesterday. No pain has been experienced. Pressure in any direction on the crown of the tooth gives no pain. There is but little inflammation in the gum. Mr. R. leaves this day for Europe.

CASE 8th. Nov. 4, 1851.—To-day Mr. S., aged about 27, of a sanguinous nervous temperament, consulted me in relation to a large cavity on the posterior approximal surface of the left second superior bicuspid. The tooth had several times given him uneasiness. The

diseased dentine readily yielded on pressure, compressing the nerve and affording great pain. I excavated the diseased dentine, exposing the nerve, which was very irritable and painful. Its vessels bled freely. I proceeded to perform Hüllihen's operation. The drill that I endeavored to employ in the operation was not sufficiently tempered, and bent under the effort. The refractory condition of the patient, growing out of apprehension and natural excitability, admonished me to avoid any delay in performing the operation. I, therefore, completed the puncture through the fang with a drill, some larger than would have been chosen for the purpose, and with a neck almost equal in size to the point of the cutting edge. Pain and irritation of the nerve ceased on the completion of the operation. The pain attending the operation was not great.

Nov. 11.—Saw Mr. S. every day from the time the operation was performed. But little inflammation occurred in the gum. No unusual symptom occurred to direct the attention of the patient to the tooth, further than it "felt a little sore."

Nov. 19.—The tooth has become very sensitive and painful to the presence of warm fluids received into the mouth.

Nov. 21.—Mr. S.'s tooth is still painful to the presence of warm fluids, and feels a little elongated.

Nov. 24.—To-day, on examination, I found a small collection of matter at the point pierced by the drill, over the fang of the tooth. All pain subsided on the appearance of the pus.

Dec. 1.—Examined the tooth of Mr. S. No change.

May 9, 1852.—Examined the tooth again. The discharge of pus at the mouth of the puncture is much less. Some little uneasiness in applying pressure in some directions to the crown of the tooth. The vitality of the crown destroyed.

CASE 9th. Dec. 6, 1851.—While excavating a cavity on the posterior approximal surface of the right inferior first molar, for Miss D., aged about 30, of a nervous sanguinous temperament, with general good health, I exposed the nerve at a small point. The exposure was attended with a good deal of pain, of an acute nervous character, which was felt on exhausting the atmosphere from the cavity. I proceeded to perform Hüllihen's operation. The puncture could not be made back of the alveolus, as it would carry the drill too far down on the tooth to allow the instrument to enter the nerve chamber. The entrance of the drill into the nerve cavity was distinctly felt with the hand, and observed by an exclamation of pain by the patient. As I withdrew the drill I felt it break. An examination of the puncture

presented the broken end of the drill, exposed about half a line beneath the dentine of the tooth. Could not dislodge it. All pain of the operation quickly subsided. The atmosphere could now be withdrawn from the cavity without pain. Yet there was sensibility of the exposed nerve. I determined, under the circumstances, to perform the operation of filling the tooth, which was completed at this sitting.

Dec. 12.—Saw Miss D. She has had no pain in the tooth operated on more than in other teeth when the cavity is sensitive in the operation of plugging. The gum is slightly swollen about the puncture. Pressure on the crown of the tooth in all directions induces no pain whatever. Tooth sensitive when ice water is brought in contact with the plug. Patient expressed more confidence in the permanent success of the operation than I feel.

May 17, 1852.—To-day I examined Miss D.'s tooth, on which I operated, breaking the instrument. The tooth has given her no inconvenience. It is still endowed with vitality. The puncture through the gum has not closed. No inflammation in the gum. On exploring the puncture could detect where the drill had penetrated the tooth, after which the bristle met with resistance. There is no discharge from the puncture.

July 9, 1852.—Had an opportunity of making inquiry from a member of the family, and Miss D.'s tooth still remains comfortable, without offering any kind of offence.

CASE 10. Dec. 13, 1852.—I exposed a nerve in a cavity on the anterior approximal surface of the left superior central incisor, for Mrs. J., aged about 28, of a nervous bilious temperament and precarious health. In addition to her usual feeble health, the patient has recently recovered from an attack of typhoid fever. The tooth, in which I exposed the nerve, has given some uneasiness, but no absolute toothache. I performed on this tooth Hüllihen's operation. It was not attended with much pain. The exhaustion of the atmosphere from the cavity, after the operation, was not attended with the same degree of pain as before it was performed. On examining my drill, I found the extreme point broken. I doubt not that it is somewhere in the artificial canal, but cannot discover it by examination.

Dec. 17.—To-day I examined the tooth of Mrs. J. The gum is but little inflamed. No pain has been felt in it, and pressure can be applied to the crown in all directions without pain. To-day I exposed a nerve in a cavity in the anterior approximal surface of her right superior central incisor. The tooth had given the patient some unea-

siness, but not tooth-ache. I performed Hullihen's operation, which was attended with but little pain. Could exhaust the atmosphere from the cavity after the operation without as much pain as before it.

Jan. 13, 1852.—I was called on by Mrs. S. Complains of pain in the left superior lateral incisor, which I had plugged on the 23d of December last. The plug was introduced in the anterior approximal surface. No symptom attended the preparation of the cavity or during the operation of plugging, to lead to the suspicion that the nerve of the tooth was exposed. The tooth began to pain her on the 11th, and gradually increased until now; pulsating pain is felt in the crown of the tooth. No elongation is felt; nor is pressure on the crown of the tooth in any direction attended with pain. The gum about the tooth is reddened, and in places excoriated by some stimulating application made by the patient. I performed Hullihen's operation. The drill was shortly followed by a drop or more of slightly colored serum. The pain immediately abated. The two central incisors on which I had operated had given her no pain. The puncture over her right incisor had almost closed, and the point could only be detected by a difference of color. The puncture over the left central incisor has not closed, and its location can be distinctly recognized.

Jan. 19.—Mrs. J. informed me that the left superior lateral incisor gave her some pain yesterday. The gum about the puncture is slightly swollen. She tells me that cold or warm drink taken into the mouth produces pain in the three incisors operated on. No pain experienced by applying pressure to the crowns of either of these three teeth.

Jan. 20.—I exposed the nerve in a small fissure when excavating a cavity on the masticating surface of the superior right molar in the mouth of Mrs. J. I performed Hullihen's operation. The drill entered the tooth between the neck and the alveolus, just where the buccal fang united with the crown of the tooth. The operation was attended with considerable pain, after which none was felt on exhausting the atmosphere from the cavity.

Jan. 22.—Mrs. J. informs me that no discomfort followed the operation on the molar. The tooth and gum, on examination, present no symptoms of inflammation.

Feb. 15.—Mrs. J. complains of pain in the molar which had its nerve exposed. No inflammation in the gum; no pain produced by pressure in any direction when applied to the crown of the tooth. The pain did not continue long at any time, but occurred at intervals, and was not of a throbbing character.

March 29.—To-day Mrs. J. called at my office with her face swollen. She had suffered pain for two days in the right superior central incisor.

This tooth was sensitive to the least pressure. There was a collection of pus in the tissue about the gum—gave it vent by lancing, which afforded immediate relief.

May 17.—To-day I examined the teeth in Mrs. J.'s mouth, on which I performed Hüllihen's operation. The nerves in the two superior central incisors and the left superior lateral have suppurred. The teeth have changed their color, and pus can be forced from the puncture of each, which has not closed in the least. The right superior second molar still retains its vitality. The puncture in the gum has almost closed.*

CASE 11th. Jan. 15, 1852.—Miss De B., aged about 19, of a nervous bilious temperament and general good health, consulted me in relation to refilling the posterior approximal surface of the right superior central incisor. In excavating the cavity I exposed the nerve in a fissure of the chamber. The whole operation of excavating the cavity was attended with a good deal of pain. The tooth had never before given the patient any discomfort. The atmosphere could not be exhausted from the cavity without a severe nervous pain being felt through the whole tooth. Performed Hüllihen's operation. This was done with an instrument larger than the usual size of the nerve canal at the point perforated, and at the age of the patient. The operation was marked by considerable pain. After the operation, could exhaust the atmosphere from the cavity without much pain. Proceeded to fill the tooth.

Jan. 22.—To-day I had an opportunity of examining the tooth of Miss De B. She had experienced no discomfort except when very cold liquids were received into the mouth, when the tooth would become painful for a few minutes. No pain on pressure being applied to the crown of the tooth. There was considerable inflammation immediately about the puncture in the gum.

March 4.—To-day I examined the tooth operated on in the mouth of Miss De B. The puncture is closed, and can only be detected by a slight difference in the color of the tissue, and without a knowledge of the operation having been performed, would not be detected on careful examination. The tooth has given no discomfort, and feels healthy to the patient.

(To be continued.)

* *Aug. 28.*—To-day I saw Mrs. J. She informed me that the right superior second molar gave her considerable pain at one time during July, since which time it has not been painful, although not as comfortable as before this period. On examining the tooth I am satisfied that the nerve is destroyed. This is the last tooth in Mrs. J.'s mouth operated on, all of which have failed.

IMPRACTICABLE THEORIES.

The age of theorizing and theories, simply, has quite or nearly passed; and a spirit of strict and thorough philosophical investigation has taken its place. The people, and particularly the medical profession, are becoming eminently practical. A utilitarian spirit prevails. No hypotheses or theories can be allowed a place, unless based upon and well built up by facts. No man, from a limited number of experiments, or cases which may have come under his observation, can sit down and draw out a theory—ingenious though it may be, and plausible, but mingled as theories usually are, with conjectures, certainties, and suppositions—without being liable to be called upon to enlighten the public or the profession, relative to what seems to them conflicting principles. There are, doubtless, things connected with the practice of hydropathy, homœopathy and the botanic systems of medicine, which are good and true; but this by no means proves these several systems to be founded and built upon a true and scientific basis. The true reasons why the systems and practices of the humoralist, of the solidist, and of the vitalist, could not exist long, was because they had not sufficient facts to sustain them, and not enough for any length of time to hide their deformities. The new theory of the motive power of the circulation, (the Willardian,) though defended with much skill and talent, has, as yet, failed to be established, simply for want of sufficient evidence to prove it, or facts to demonstrate it, and is now either asleep or dead.

The surgical operation which has of late claimed the attention of the medical profession—called “Hullihen’s operation,” or Miller’s operation (as may best please)—has excited considerable interest, and I trust may be productive of much good; but in order to judge correctly of the practicability of any question, or practice, the evils as well as the benefits growing out of it should be considered. The advocates of the new operation claim, I believe, that the surgeon is enabled to plug the carious tooth when the dental pulp is exposed, without pain, and preserve the vitality of the tooth. I do not quite understand how the nerves and blood-vessels can be severed, and, as in some cases stated, the dental pulp removed, without destroying the vitality of the organ. It has always been my impression that when the circulation of the nervous communication is cut off from an organ, it immediately loses its vitality, and nature soon makes effort to remove it. I cannot see why the same rule does not apply to the teeth. So far as my observation goes, it does; for when the vitality of a tooth is destroyed, nature makes effort to rid herself of it, and will do so sooner or later, either by ulceration taking place around the fang, or by absorption. Then, if

the vitality of the tooth be destroyed by Miller's operation, (or Hüllihen's,) the organ can be in no better condition than if it had been destroyed through the carious cavity; and the only advantage gained is, that it is more convenient, and an opening is left for the discharge of pus, should any be formed. It is stated by one of the suggestors of this operation, that when the dental pulp was removed, the result "in every case, so far as known, has been as successful as when the pulp was allowed to remain;" also, "that when the pulp is removed, the teeth are not sensible to impressions from heat and cold." Now, if the dental pulp can be removed by ulceration or by mechanical means, and the tooth still retain its vitality, and not be sensible to impressions from heat and cold, I must confess that the dental surgeon has made a discovery which must entirely revolutionize all our previous notions of vitality as dependent upon the nervous system and the circulation.

Dr. Miller, in the second of his reported cases found in the *Journal*, vol. xlvii., No. 12, says, "having amputated the nerve of the cuspidatus, a query arose as to what should be done with the bicuspid having *two* nerves. After a moment's reflection the drill was carried deeper, cutting off both branches, and the teeth filled without pain." If the doctor had reflected two minutes, instead of one, he might have come to the conclusion that the bicuspid is furnished with but *one* nerve, instead of two, as a general rule—those that have two (as is sometimes the case) being *exceptions*, and not the rule.

The operation requires a careful consideration and examination, before we come to the *grand* conclusion that this is the great ultimatum, long desired in dental surgery. There seems to be a tendency with some minds, in investigating a subject, to first form an opinion, and then labor to make their experiments prove their opinion correct, which leads them to receive only such results as may prove their preconceived notions. This must usually bring a wrong conclusion.

M. M. FRISSELLE, M. D.

Rockville, Conn., Jan. 20, 1853.

[*Boston Med. and Surg. Journal.*]

Republished from the *Medical Examiner* of October 19, 1844, by request made by Dr. R. ARTHUR, in his paper on "Dental Caries," published in the October number (1852) *Am. Jour. Dent. Science*.

ON THE TREATMENT OF THE DENTAL PULP.

BY JOHN D. WHITE, M. D., OF PHILADELPHIA, SURGEON DENTIST.

The age at which the roots of teeth are completely formed, is a subject, which, as far as I have observed, has not been settled. Yet it is as important a point, in a practical point of view, as any other

connected with their development. Of course, the same irregularity with regard to the completion of the formation of the roots as to age will obtain, as with the protrusion of the teeth through the gum; consequently it will be difficult to arrive at a knowledge of the precise period at which they are completed.

A few observations by some of the profession would, I have no doubt, soon suggest something sufficiently definite to enable us to form a correct diagnosis when called upon to treat the diseased teeth of young patients. I was first impressed with the importance of the subject about five years ago; but I confess not until several ineffectual attempts at saving incompletely formed teeth, by treating the pulp, and filling them, compelled me to seek out a deeper cause than the mere mode of treatment. I examined authors, but found nothing on the subject. Whether they have considered it as a matter which would strike the mind of any one who would attempt to operate at all, as so self-evident as to require no precaution or comment, I know not; but it is certain that a few hints would have saved me some trouble, and my patients some pain, in the commencement of my practice.

I know well that there are many in the profession, of longer experience and more extensive reading than myself, who have met, and still do meet with similar difficulties by not having any very definite practice on the subject.

I have a number of specimens of the second molars, extracted from different patients, of fourteen years of age, in which the foramina at the extremities of the fangs are from half a line to a line in diameter. If we were to calculate the time it requires for a tooth to become completely developed after it pierces the gum, it would assist us in making out a diagnosis, and this will call for an exercise of the judgment of the practitioner; as the patient is often unable to recollect the precise time at which the molars first appear. Age, therefore, would seem to be the best guide. The teeth of patients under twenty, even though they seem to be fully developed, as far as my experience goes, are more difficult of preservation than those of older patients.

When we are consulted with regard to the teeth of young patients, we find the observance of the following rules of great value; but of course they are by no means in all cases to be relied on, but they are an approximation from which the operation must deviate, according to the nature of the case. If the pulp be exposed in a first molar of either jaw, and the patient under twelve years of age, we consider it beyond the reach of successful treatment; if it be one of the second molars, and the patient under sixteen, the treatment, as a general rule,

will also be unsuccessful. In consequence of the fangs of the single teeth being farther developed when they pierce the gum, than the fangs of the double teeth, they can be treated with more safety than the latter, and in a shorter time after they make their appearance. As the patient in almost all cases observes the time at which the single teeth pierce the gum, if we add say from three to four years, it will allow sufficient time for the completion of the fangs; a regard, therefore, by the operator of the times respectively at which the single teeth make their appearance, will be essential to the formation of a correct diagnosis. If the pulp be destroyed, the farther formation of the tooth will be arrested. Intense inflammation will be produced in the external membranes and jaw, by destroying the pulp outside of the incompletely formed roots; and if it be not destroyed, inflammation will extend to the external membranes, which will produce the same result.

I was solicited by a lady, about three years ago, to destroy the nerve of the first inferior molar, for her daughter, who was about eight years of age. I refused, for reasons given above; but not being satisfied with my opinion, she sought advice elsewhere, and the dentist to whom she applied destroyed the nerve, as he said, and plugged the tooth; after which intense inflammation set in, the part was poulticed externally (when poultices are applied, they should invariably be applied to the gum opposite the tooth,) to produce suppuration, and as it was extensively inflamed and swollen, it pointed outside opposite the tooth, near the base of the jaw. The parent became alarmed, and applied to me again; I removed the tooth, as a matter of course, and found the roots of it incomplete, and the foramen large enough to admit the barrel of a crow-quill.

For the Dental News Letter.

MESSRS. JONES, WHITE & McCURDY:—The January issue of the "Dental News Letter," in its editorial, has some statements in regard to myself, in connection with the new operation on the dental nerves, that need correction. It is stated that I "was present at the meeting of the American Society, held at Newport, last August," before which an "essay" was read on that subject; and that if I "had been following the same practice, he (I) should have made it known then and there." The editor does not venture an opinion "as to the merits of the operation," but says, "we will be so meddling as to suggest, that had Dr. M. stated before the Society what he has since published, this discussion, and some asperities of feeling, would, in all probability,

have been avoided." Having stated that I was *not* "present," and given the reason *why*, in the Boston Medical and Surgical Journal, for Nov. 17, (Vol. 47, No. 16,) with which number your editor shows an acquaintance, by having copied from it an editorial complimentary of "dental literature," I am at a loss to account for so palpable an error having crept into your journal, inasmuch as I had always supposed it to be your intention to make your periodical not only a reliable medium for transmitting useful information to the profession, but a publication designed to treat every member with fairness and impartiality. The language toward me is direct, free from ambiguity, and calculated to convey an erroneous impression; therefore, allow me, through the same medium, to say, or rather repeat, in substance, what has already been published in the beforenamed journal—that I was *not* "present at the meeting;" that I did not arrive at Newport till some three hours after adjournment; that the *cause* of my detention was an unexpected and alarming sickness of my wife, &c. It will be seen, from these facts, that I had no opportunity of making "known, then and there," and of "stating before the society what he has" (I have) "since published." But I did make known to several members my experience with an operation, which originated with myself, and which I had practiced successfully over two years, and that I was not aware that any other member had been pursuing a similar course previous to my arrival at Newport. As to the "asperities of feeling" alluded to, it were better if those who, as editors, undertake to inform the public mind and advance the progress of science, would endeavor to allay contention and promote harmony, by adopting an impartial course of conduct, and not suppress correct information, rather than encourage discord by publishing misrepresentation. While I would not detract from the merit of any member of the profession, I cannot submit tamely to being dragged before the community, and placed in a false position, without asking for an explanation; and if in this matter facts can have their due weight, I shall have nothing to complain of, and nothing to fear.

Yours, &c.

S. P. MILLER.

Worcester, Mass., Feb. 28th, 1853.

[In our notice of this matter, published in the last number of the "News Letter," we stated, in substance, what had been already published, making no remarks of ourselves, excepting that we expressed the opinion that Dr. Hullihen's claim to priority was undeniable; and further, "that had Dr. Miller stated before the society what he has since published, this discussion, and some asperities of feeling, would, in all probability, have been avoided." Now, when we wrote the article,

there was not the shadow of a doubt in our mind that Dr. Miller was in the Ocean House during a portion of the last day's session of the Society, (Aug. 4th,) and, although we noticed in an article of his, published in the Boston Medical and Surgical Journal, the assertion that he did not arrive in Newport until after the adjournment of the Society, still our conviction to the contrary was not, and is not now shaken: and his renewed assertion of the same, in the above communication, has led us to make some inquiries, that our statement to the contrary may not rest solely upon our own responsibility; and we think we are now warranted in making the assertion that Dr. Miller *was* in Newport, and at the Ocean House, (where the Society met,) before the adjournment of the Society, but whether present at the last afternoon's session, we are not prepared to state—but this is immaterial. All we wish to show is, that Dr. Miller could have been present during, at least, the latter part of the afternoon session, if he had so wished.

We make the above assertion upon the strength of the registry of his name on the books of the Ocean House, the proprietor of which states that he arrived on the 4th of August, and he thinks in the afternoon; but more especially do we base it upon the announcement made by Dr. M. K. Bridges, on the floor of the house, during the session, that Dr. Miller was then in Newport, and at the house at which the Society was then convened.* Now, we place these facts in opposition to his statement, that he had no opportunity to make his discovery known to the Society, and leave our readers to form their own opinion.

Again, we can state—and we think Dr. Miller will not deny it—that he knew the substance of Dr. Cone's report, and consequently of Dr. Hullihen's operation, before he left Newport; and yet, after his return home, he publishes what he would have his readers understand to be a discovery of his, omitting (a singular omission, Doctor,) to make mention of Dr. Hullihen in connection with the same operation. His object in making this omission, we can only infer.

Again, we are accused of "*dragging him before the community.*" Let us look at this a moment. In the Boston Medical and Surgical Journal, for Oct. 20th, we find a paper over the signature S. P. Miller, setting forth his discovery, and its application to the treatment of exposed dental nerves. To this succeeded other papers on the same subject, in the same Journal; also, in the New York Dental Recorder, in the Worcester Transcript, and the Worcester Spy; many, if not all of which, appeared prior to the first of January, at which time our

* See Dr. C. O. Cone's article in the Feb. No. of the New York Dental Recorder.

remarks were published; and yet we are accused of *dragging him before the community!*

The opinion given as to the duties of an editor, we agree with perfectly, and have always endeavored to follow the course pointed out.

As to the charge of "suppressing correct information," and "publishing misrepresentation," we have nothing to reply, as it is so palpably untrue in our case as to be apparent to any reader who will take the trouble to refer to our remarks in the January number of the "News Letter."

We close with the remark that we did not anticipate, and do not now desire, a discussion on this subject, and shall very reluctantly, and then only in self defence, have any thing more to say about it.—ED.]

[The recommendation made in the following article, which we copy from the London Lancet, for February, 1853, is precisely the same, and we strongly suspect has been taken from the paper by Geo. J. Ziegler, M. D., of Philadelphia, published in the Boston Medical and Surgical Journal, for April, 1852, and republished in the January number of the Dental News Letter.

By a reference to the last named periodical, it will be found that Dr. Z. has been pushing his experiments with this agent to a great extent, and that there is good promise of valuable results, especially to the medical man. We know him to be indefatigable in his labors, and have, therefore, large expectations from his investigations on this subject.—ED.]

A PREVENTIVE OF DEATH FROM THE ADMINISTRATION OF CHLOROFORM.

To the Editor of the Lancet :

SIR—Observing in the Lancet, of the 1st instant, the report of a "death from the administration of Chloroform," I beg to recommend, as a preventive of these serious casualties, the application of oxygen or nitrous oxide the moment indications of congestion or asphyxia are observed. In all cases, therefore, especially those of a doubtful nature, let a bag of one or both of these gases be *ready* before the administration of the chloroform; the oxygen prepared from the chlorate of potash, and the nitrous oxide from pure nitrate of ammonia, and well washed in warm water.

As there may be some mechanical difficulty in the administration of these gases, I would suggest that a bag be made to cover the head, tied or held round the neck, so as to be tolerably air-tight, and the gas introduced into it. By these means it must be inhaled, either

through the nostrils or mouth, without the slightest difficulty to either patient or operator. If these hints save but one life, my object will be attained. I, however, believe that they will be valuable in other respects.

I am, sir, yours, very respectfully,

F. HAM.

NEW YORK COLLEGE OF DENTAL SURGERY.

The Annual Commencement of this institution was held at the Lecture Room of the College, on Tuesday evening, March 1st.

The valedictory address was delivered by Srof. Stevens, upon the "Condition of Professional Science." It was replete with sound views and useful suggestions, and was listened to with attention and pleasure by the audience.

The graduating class consisted of young gentlemen who had completed the course of study required by the charter, and who were recommended by the examining committee as suitable persons to receive the degrees of "Doctor of Dental Surgery."

Diplomas were conferred by Dr. Westcott, the Dean of the Faculty, upon B. F. Wright, L. G. Bartlett, W. W. Alport, I. D. Kilbourne, B. C. Lefler, W. Dalrymple.

Dr. Hervey, of Buffalo; Dr. Dunning, of New York; and Dr. Nelson, of Albany, the examining committee, were present.

We are gratified to learn of the success of the New York Dental College, in the second year of its existence. It is the only institution of the kind in the state, and must powerfully contribute to elevate the standard of excellence in the dental profession, and diffuse a more thorough acquaintance with dental science among the profession.

Heretofore, in this state, dental surgery has only been taught in private offices. The consequence has been, that the advantages for obtaining a thorough and complete education as a dental surgeon, have been restricted.

The New York Dental College has a very able corps of Professors, is well supplied with anatomical and dental preparations and collections for illustration, and every facility is furnished to the dental student for obtaining a thorough knowledge of the theory and practice of dental surgery.

Prof. Parmley, we learn, is soon to return from Paris, when he will enter upon the active duties of his professorship in this school. Our citizens may well feel interested in the success of the New York College of Dental Surgery.

ON EXOSTOSIS AND SOME OTHER DISEASES OF THE TEETH,
AND THEIR CONSEQUENCES.

Read before the Western Medical and Surgical Society of London,
Dec. 17, 1852, by Dr. PETTIGREW:

He commenced by drawing attention to the healthy structures perceived in a section of a tooth when viewed microscopically. He demonstrated, by an ingenious set of models, how and why the enamel consisted of hexagonal crystals, and how it was unlikely that any disease should occur after the enamel was once healthily formed, except from mechanical or chemical causes. Caries of a tooth most usually commenced in the enamel, and was a consequence of chemical action produced during fermentation by some portion of food lodging in a groove or indentation in the crown of a tooth; this, and the progress of caries, were shown in a series of preparations. The fact itself had been demonstrated to him by his late friend, Mr. Durance George. Irregularity in the deposit of the enamel was alluded to, such as is frequently seen in the second set of teeth. This might be due to scrofula, fever, or other disease, affecting the child at the time of the deposit of new material, or some times to the injudicious administration of mercury. In the ivory, or dentine, no exostosis ever occurred; the material consisted of tubes too small in diameter to admit a red globule of blood, the vitality of the dentine being maintained by endosmosis and exosmosis. When, from disease, the tubes were filled with an earthy or chalky material, the teeth soon became fractured and destroyed. The cementum, or last structure seen in the section, was similar to bone, with the exception that Haversian canals had very rarely been detected in it. This cementum surrounded the roots of a tooth, and was very frequently the source of much disease, when exostosed, as is often the case. The exostosis was of two kinds—the ivory and the common osseous exostosis. The latter differed in structure from the healthy cementum, by being apparently formed round the fang in laminae, and the lacunae or corpuseles being regularly deposited in rings around the root, whereas in healthy cementum the lacunae are scattered irregularly. An interesting case was related of abscess of the antrum, occurring from an ivory exostosis pressing on the membrane of that cavity; the bony floor, if it had ever existed, having been absorbed by pressure. The result was favorable, the tooth having been extracted, with much caution, by Mr. Fox. The after-treatment was that usually resorted to in similar cases of abscess of the antrum. An interesting specimen of cemental exostosis was shown as having caused an abscess in the jaw of the elephant Chunev, who some years back was shot, under a mistaken notion of the cause of his fury,

at Exeter Change. Reference was made to the consequence of teeth—especially the *dentes sapientiæ*—taking a wrong direction whilst being erupted. Cases were quoted in illustration of this, as well as of other points alluded to in the paper, and a variety of preparations and drawings were exhibited to the Society.

An animated discussion ensued, in which Dr. Cahill, Dr. Murphy, Mr. Barnes, Dr. Woolley, Mr. Vasey, and others, took part.

London Lancet.

[We commence in this number the publication of some extracts from Talma's recent work on Dental Medicine, very kindly translated for us by C. A. Du Bouchet, M. D., dentist, of Philadelphia. He promises us copious selections, which we shall continue to publish, in succeeding numbers, as long as found of sufficient interest.—ED.]

To the Editors of the Dental News Letter :

GENTLEMEN:—In making translations from the valuable work of Dr. Talma, on Dental Medicine, I have deemed proper not to omit any portion of the preface. We need a correct *expose* of dental science on the Continent, so that, seeing wherein our European brothers are deficient or superior, we may either justly congratulate ourselves, and endeavor to continue in advance of them, or emulate their industry and perfect ourselves to such a degree that American dentistry, in all its branches, shall ever stand pre-eminent—a model for the standard attainments of dentists in the whole world.

The wants and requirements of dental science seem to be duly felt and appreciated by the author; and, although his devices for remedying the crying evils are not adapted to this country, and are far better met by our dental colleges, it will perhaps be gratifying to the profession to perceive that genial spirits and well-informed men, although separated by deep waters, but laboring in the same vineyard, thousands of miles off, almost simultaneously come to the rescue of our noble and useful profession, and are making the most strenuous efforts to raise it to its proper level—to qualify her to call medicine, sister.

Entertaining, as I do, the conviction that too great an abundance of light cannot be thrown on a subject of so much importance, as proper and well-directed instructions for the due qualification of sound practitioners, allow me at the same time that I offer you, for this number of the Dental News Letter, Dr. Talma's preface, to express the feelings of deep satisfaction with which I have watched the rise and progress of our Philadelphia College of Dental Surgery. Such institutions in our free land, will do more, yea far more, for the advance-

ment of science, than the patronage of all the monarchies in the world. Indefatigable, excellent teachers, up to the wants of the student, as they have themselves felt them, years ago, when groping in the dark—gentlemen of the highest order of talent, each in his especial branch—the Professors of the Philadelphia College have nobly achieved their arduous task. Well may their graduates be proud of their *alma mater*. Anxious must they be to emulate their teachers in the rugged path of dental science. Success shall attend them. “By their fruits ye shall know them.”

Should it meet your wishes, it is my purpose to furnish you a portion of Dr. Talma's Memoirs for each following number of the News Letter. I shall take the liberty to add short notes when occasion may require.

Croyez moi tout a vous,

D B.

MEMOIRS ON A FEW FUNDAMENTAL POINTS OF DENTAL MEDICINE, CONSIDERED IN ITS APPLICATION TO HYGIENE AND THERAPEUTICS.

BY A. F. TALMA, M. D., DENTIST TO THE KING OF BELGIUM, &C. &C. &C.

First Series. Brussels, 1852.

PREFACE.

General considerations on Dental Medicine, its relations to the other branches of Medical Science, and the guaranties which should be found in practitioners.—In preparing the Memoirs collected in this book, it has not been my design to compose a treatise on the art of the dentist, and to reproduce, with the appropriate details, the well known general principles and operative processes so well described, which are its basis.

My aim has been to present, on the most important branches of dental medicine, observations which appear to me to be interesting, and rules for practice, of which experience has proved the advantages.

Popular opinion has unfortunately become accustomed to consider the art of the dentist as a profession merely mechanical, placed out of the rules of general medicine, and limiting exclusively its attributions to the manipulations indicated to remedy vicious implantations of teeth or various material alterations of their substance. The public do not understand that a dentist should be, not a more or less skilful mechanic or artisan, but a well taught physician, whose specialty is the study and treatment of the maladies of a special order of important organs, those which constitute the dental apparatus.

Unfortunately, this opinion, which is but the continuation of that entertained of general surgery in preceding ages, is received by a cer-

tain class of men, well informed in other respects, who are called upon to exercise influence in the legislating of the practice of medical professions. We should add that, for the want of a better direction imparted to their studies, and in accepting too readily the place allotted to them, many dentists—I might say, the greater portion of the profession—do not carry their researches and attention beyond the mechanical part of dental pathology and the therapeutics relating to it.

I have endeavored to destroy this prejudice, unworthy of the enlightened era in which we live—this cramping restriction, fatal to the public, of the information which the dentist should possess. For the last ten years my own opinion regarding this fact, has but become stronger by the experience of the deplorable results of old routine and irrational empiricism of which I am a daily witness, and which have no origin but in medical ignorance; excusable so far, that authority is not sufficiently forewarned against it, but which no less, produce fatal consequences to individuals and families.

In endeavoring to impress on dental medicine the scientific character belonging to it, and to show that it is in that road only that it will find true progress, I have followed the footsteps of Fauchard, Duval, Fox, Delabarre, Lemaire, and those of our English and French cotemporaries who, by their writings and skill, have attained the first rank in their profession. May I not have remained too far beneath the models they have left us.

Almost at every page of this book will be found examples of the alliance of physiology with dental medicine, in order to account for, prevent and treat with success, the diseases of the teeth which have been produced in the fœtus during its formation, or have been developed after birth, at the epochs of dentition. Further, the physiological outlines, drawn from the observations of organic constitutions and in a thorough study of the influences of hygiene, as well as the reciprocal relations of the different organs, furnish the rational bases for all dental operations. Finally, the therapeutics of the greater number of the maladies of the teeth, rest in every case upon these two principles—medical treatment, attacking causes; manual operations, remedying effects. I show by experience, as well as by reasoning founded upon the most positive laws of organism, that appropriate medication should almost always be the requisite preliminary or complement of operations, which, without medical treatment, would necessarily remain inefficacious, inasmuch as the evil influences would still remain unchecked.

General medicine must, then, lend its light to the dental art, as well and in the same degree as to every speciality of surgery. This truth

will be so apparent, I hope, after reading these Memoirs, that no one will be able to let it pass unnoticed. The linking of positive and extensive medical knowledge with special practical skill, shall henceforth be the absolutely necessary requirements expected from any dentist desirous of deserving public confidence.

Separating the physician from the artist is, as a long continued observation of facts has permitted me to ascertain, creating, as far as regards the dental art, two incomplete men. The former will not possess a sufficiently thorough knowledge of the maladies of the teeth, in order to make, in every case, a correct diagnosis, to recognize their complications, lay hold of the indications presented, appreciate or foresee the difficulties of requisite operations. The latter, on his part, limited to the part of operator, by the instructions and directions of the master, will necessarily be cramped and hindered; wanting precedents, incapable of doing any thing by himself, deficient in suitable anatomical knowledge, he will only be able to perform the most commonplace operations, or, if he venture farther, will lay the patient exposed to accidents, which he will neither know how to prevent or how to remedy.

Finally, in spite of every thing, as a natural consequence, and therein is the real danger, the mechanic will always be viewed by the public as the veritable dentist; almost contrarily to his will, he will perform such services and consequently perpetuate the actual condition of things which has become intolerable no less concerning the dignity of the profession than public security.

Without repeating here what I have expressed at length in pamphlets previously published, I must insist upon the disasters accruing to every community fostering in their midst illiterate pretending dentists, ignorant of the principles of medical science, properly speaking, merely mechanics operating with more or less dexterity, upon the human jaw or the inert matters they attach to it. Evidently the interest of the public is, that in every thing which relates to the healing art, whatever be the specialty of its applications, families may obtain the services of capable, well informed men only. Levelling up the standard of knowledge and aptness in any class of physicians, is a direct service to humanity needing their advice.

Accordingly, to my views and to meet the wants of society, a system of instruction in the dental art, should be added to the branches taught in medical faculties, in the same manner as are conducted the instructions in obstetrics, diseases of women and children, cutaneous diseases, ophthalmology, syphilitic affections, &c. This adjunction is

justifiable, or rather imperative as to the dental art, because it relates to special affections, having their seat in organs of a very peculiar structure, claiming means of treatment, operations and applications without parallel in the practice of the other branches of surgery. In the very highest point of view of their institutions, medical faculties should meet the well known wants of society ; teaching and enlightened practice should go hand in hand and derive strength from each other.

If, after closely examining the exigencies for teaching the dental art, it was deemed superfluous to allow it a special practising school in our hospitals, as however has been granted to lithotrity and orthopædy, there would however be found a necessity for establishing in each medical faculty, on stated days, a gratuitous clinique for Dental Diseases. On those occasions, once or twice a week, the poor should apply to receive the professional assistance which their condition claims. There would be explained before the students all the peculiarities of dental medicine, and the practical applications it comprehends regarding children and adults, out of an immense variety of cases such as private practice ; seldom succeeds in securing. A well-informed practitioner charged with this duty of teaching, a few aids appointed by competition, a laboratory reasonably supplied with stock, instruments and tools, would be sufficient for this modest *service* or practising school. In opening to art a fecund source of labor, emulation and progress for the benefit of every family in the land, this institution would at the same time do honor to and reflect credit on government, conferring through it a precious boon upon the poorer classes, heretofore almost entirely destitute of care, advice, and especially of the retrieving apparatus so often rendered necessary by maladies or the dental mutilations of which these classes are so often the victims.

In order to promote this theoretical and practical study of the dental art, it would be useful that a respectable practitioner should be attached to each of our great national schools ; his intervention and ministering to the young of both sexes fostered in those establishments, would accomplish immense good. The advantages of such a foundation are self-apparent and need but to be mentioned.

The law of September 27th, 1835, in requiring a doctor's diploma for the practice of the various branches of the healing art, mentions, it is true, only medicine, surgery, the art of obstetrics, and that of the oculist, but in ending this enumeration with "and so forth," the law implies that other branches might be included with the above, should their importance justify it ; and this is what appears to me precisely to be the case with the dental art.

Strictly speaking, and by right, all dentists should be doctors of medicine, and all doctors of medicine should be able to practice the dental art. But the wants of society, combined with the convenience and interests of persons, necessarily modify much this rule. Dentists, properly called, on account of their specialty and the restricted applications for their services, will never be able to locate out of large towns, for the want of proper support; secondary places, not supplying a suitable support, will necessarily be deprived of their services. But if every physician had been able, during the time of his scholarship, to become well informed in this branch of the healing art, he might be found far more adequate to the hygienic advice and the usual operations claimed at his hands, than he is now. In regard to exceptional cases, or anomalies, requiring either particular operations or appliances, such physicians would be able to follow indications and would have resource to such professional brethren as make this branch of the art their most special object of practice.

By such an organization, relations and intercourse among practitioners of similar standing, title and qualifications, having at heart, in the same degree, the dignity of the art and the welfare of patients, relations and intercourse would ever be easy, honorable, and to the ultimate advantage of patients; the reciprocal imparting of knowledge and practical observations, would develop a new source of progress, to the profit of all.*

At the present time, both the interests of science and society, imperatively and loudly call for the extinction of a set of ignorant pretenders, preying on public credulity, and multiplying with incredible audacity and greedy avidity, the most lamentable mutilations.

Let authority lend her aid in the fulfilment of this salutary task. Whatever be the measures resorted to by government to obtain this end, enlightened men, good citizens, will applaud and support it by their suffrage.

MEMOIRS ON A FEW FUNDAMENTAL POINTS OF DENTAL MEDICINE.

1. *Structure of the Teeth.*—Any serious studies on the Diseases of the Teeth, any rational advice respecting the means of preserving these organs or arresting the progress of their destruction, must have, for foundation, an acquaintance with their structure, their

* May I be allowed to notice how well these points have been illustrated by our State society's doings, and more especially by the friendly and social feeling so happily now pervading our professional borders. We think that in this respect Philadelphia has taken the lead. We hope that the same spirit will insinuate itself throughout the country, that the title of Dentist may become a pass-word and passport in any part of our glorious Union.—D. B.

degree of vitality, and the multifarious influences to which they are submitted. Out of this path we manifestly have only hazardous or imaginary theories, only blind or empirical practice.

The more and more general tendency of our times, is to research facts, to submit them to experiments, to analyze them in all their particulars, to enlighten each by the other, and finally to draw conclusions as exact as will allow the penetrations of our mind and the perfection of our means for investigation.

It has been my duty to assume as the starting point of my labors and the basis of my practice, the most positive notions of anatomy and physiology, relating to the dental system, calling to my aid the best demonstrated medical doctrines, and adapting them constantly to that branch of science which for the last twenty years has been the object of my predilection.

The teeth constitute the most essential part of this complicated apparatus, situated in front of the alimentary canal, whose function is to submit aliments to a primary mechanical operation, mastication. Their utility is not limited to this principal action, the accomplishing of which, in an easy and complete manner, exerts so great an influence on digestion, and consequently on the nutrition of the whole body, and also on the general health: they concur in the exercise of speech, contribute to sustain in their normal conformation the features of the human visage; finally, in their integrity, regularity and beauty, they are one of the most precious attributes of youth and health.

Connecting link, in some measure, between the osseous and epidermic system, the teeth have with both numerous differences and remarkable analogies.

Like bones, they are formed of a calcarious substance and an organic parenchyma. In their interior exists a vasculo-nervous membrane, which, at first, serves as a rudiment, and later, supplies them.

In opposition to that which takes place in the other parts of the osseous system, teeth are in a great measure denuded or bare, and immediately exposed to the contact of air, and to the action of external agencies.

These circumstances cause, as necessary consequences, the conditions which bring the teeth in proximity with the epidermic system. In fact, free, prominent, and exposed to a multitude of causes of destruction, it has been requisite that their projecting parts should be provided with an envelope more solid and refractory than osseous substance. These conditions are met by the enamel. By its solidity, the enamel was also requisite to render the action of the teeth more efficacious against the substances they are intended to comminute.

From this very circumstance, that they should be projecting and covered with a protective coat, it has been necessary that the osseous portion, or ivory of the teeth, should proceed from the bulb and be formed in successive layers, in the stead of being developed, as bones are, by the means of two opposite membranes, the medulary and periosteal membranes. Hence a laminated structure, analogous to that of horn, nails, hair, etc.

Finally, owing to this last circumstance, that their more bulky portion is placed exteriorly, and should bear great strain in order to be able to overcome often considerable resistance, the teeth must have been endowed with a very great solidity. This solidity results from a very compact texture, a weak proportion of cartilaginous or cellular parenchyma, and the excessive tenuity of vessels, and the absence of interstices between their fibres.

We must also notice, as important conditions of the solidity of the teeth, their generally conical shape, flaring outwardly, narrowing inwardly; the corresponding disposition of their solid substance, the thicker as it approaches the summit of the crown; the exact adjustment of the cone of the root, and its slight irregularities with the anfractuositities of the corresponding cone in the alveolus; the intervention of a membranous cushion, yielding to some extent to pressure, and preventing the bad results of the abrupt shocks and strains to which the organ is submitted; finally, as regards molar teeth, performing as they should the greatest amount of labor, the exaggeration, if we may thus speak, of all the preceding conditions, and moreover, the division of the roots and alveoli into several parts, thus multiplying the points of contact, and widening the resisting basis, thereby greatly increasing the solidity.

Among certain animals (gnawers) front teeth being intended to scratch bodies, in order to tear out particles, rather than to cut them out at one stroke, incisors would very soon have become worn out, and would have disappeared entirely had not nature provided means to remedy this difficulty. Owing to a special disposition which anatomy has demonstrated, these teeth assume, in the stead of a cone, the shape of a sort of elongated cylinder, more or less curved; their central bulb is, at its alveolar origin, relatively widened, instead of contracted, and hence it may continue, and does in fact continue, to secrete bony substance, which being constantly added to the interior of the cylinder, pushes forward that which is above, and thus adds to the length of the teeth. This mechanism, established beyond doubt, by a gentleman of whom science and the dental art have reason to be proud, M. Oudet,

is in conformity with that observed in the growth of hair, nails, and other epidermic secretions.

In the present condition of science, teeth are considered by many persons less like bones than secreted products, belonging to the class which nature has placed on the surface of certain parts of the body, to shelter, protect or defend it.

There is evidently much truth in this doctrine; it rests upon an incontestable basis of exact physiological and anatomical observations, in which the most distinguished men of our day have taken a part. But it, however, seems to me to be exaggerated in its expression to the same degree as I believe it dangerous as regards the practical consequences to which it is logically liable.

Because the teeth are analogous with epidermic appendices, does it follow that they constitute only inert bodies, deprived of vitality, merely adherent to organism and remote from its influences? In order to substantiate this strange assertion, it would at first be necessary to show that the productions to which the teeth are compared, themselves exhibit the conditions of inertia attributed to them.

Nothing can remain entirely free from the laws of organism, if ever so feebly connected with it. Between vitality and non-vitality is an abyss which, although made to appear less deep by the study of nature, is still impassable for us. In the healthy state, hair, nails, horn, are devoid of feeling, and may undergo cutting, burning, lacerating, with perfect impunity. We can discover in those substances neither nerves nor vessels—nutrition does not seem to go on; these facts cannot be disputed. But likewise in the normal condition, bones, ligaments, cartilages, aponeurosis, are devoid of sensation; and the beautiful experiments of Haller, repeated again and again by all physiologists, have demonstrated the possibility of torturing them, without inflicting pain on the animal subjected to those experiments. Bichart, however, has proved that ligaments exhibit themselves, endowed with great sensitiveness, under certain special excitations, such as the traction or torsion of their tissue. But a morbid condition, especially, reveals through the pain intense, and often even atrocious, which accompanies various affections of bony and fibrous tissues, how much in reality sensibility exists or may be developed in them.

The same considerations are applicable to epidermic products generally. Doubtless the free portions of the nail, horn, down, feather, in a healthy state, display, owing to the characteristics which we have noticed in them, an apparent absence of conditions for vitality. But let the animal endowed with these appendages become sick, let the

parts into which these productions are implanted, lose their normal conditions, and soon it will be easy to ascertain from their coloration, density, aspect, changes more or less notable. Neither the hair, nail, horn or feather have been shed and renewed, yet, during certain diseases, the alteration is manifested through the whole extent of their structure.

By recognizing that in the different parts of organism, vitality exhibits manifestations more or less numerous, more or less energetic, and that there are such parts in which it exists to a very small degree, we remain within truth; but desiring to establish that there are portions of the economy in which this vitality is absent, will ever be, for the physiologist, whose investigations embrace the *ensemble* of facts observed during health and disease, a proposition contrary to experience.

The most modern, and we may say the most exact researches, demonstrate the organic nature of the teeth, as well as the persistence of a vitality, however obscure, as may be supposed, but real, in their tissues during the entire duration of their existence.

The microscope, abandoned since Leeuwenhoeck, and again put into requisition and honor by ingenious cotemporaries, to the great advantage of all the branches of natural sciences, the microscope displays, in a distinct manner, in the bony substance, and even in the enamel of teeth, fibres, canals, and a compact cellulosity with hard and infinitely resisting walls. There remains yet, without doubt, some uncertainty regarding the ultimate texture of bodies so compact, in which the saline or inorganic matter preponderates to such an extent over the living fabric; but since the labors of M. M. Serres, Flowrens, Duvernoy, Nasmyth, this organization of dental tissues can no longer be denied. If we go back to the absolute ideas borrowed from Hunter, and strengthened by Blacke and others, we actually impart a retrograde movement to the anatomy of structures, and question the power of its new means for investigation.

It is allowable, although acknowledging the organic texture of the teeth, to hesitate regarding the peculiarities of organization. We have already stated that the observation of their formation by successive layers, had induced to admit their structure as laminated. After Malpighi, other anatomists, such as Sömmerring, Scarpa and Meckel, admitted that the dental fibres are in juxtaposition or interwoven, which would account for the remarkable solidity of the bodies which they constitute. With Leeuwenhoeck, on the contrary, Flavers, Reichel, and more recently Purkinge, Retzius and Dujardin, have believed they saw these fibres tubular or canaliculated. Finally, quite recently

Richard, Owen and Nasmyth have confirmed and demonstrated the cellular arrangement of the teeth, already indicated by Eustachi and Raw.

Very far from antagonizing and weakening each other, these various results of minute and patient researches, made with a rare perseverance in Sweden, England and France, strengthen each other not only in the fundamental principle to which all lead, but also in the most important details of the structure which it was necessary to determine. Thus, cellularity does not exclude the existence of fibres or canalicules, assuming various directions, and permeated by fluids still unknown; the laminated arrangement itself may be conciliated with the existence of cells and vessels continuing through successively solidified layers.

Let us add to these summary details on the structure of the teeth, that the entire history of the formation of these organs and the disposition of their membranes, testify to a persistence of vitality. In the interior a vasculo-nervous bulb, adhering to roughened walls, sending their attachments, having no doubt much to do with the nutrition of the organ; at the exterior of the roots a proper membrane, fulfilling the office of the periosteum of bones, also contributes, very probably, to impart to them a vitality proportioned to the density of their structure. Finally, between the part of the ivory forming the crown and the deep surface of the enamel, is found a membranous follicle, very apparent in the foetus, compressed, flattened, and more difficult to be ascertained in the adult. Although the formation of the enamel, attributed to follicles situated on the surface of the investing membrane of the bulb, seems to have no connection with this membrane, it is difficult to admit that its presence is without an object, and that it takes no part in the process of dental nutrition. It is recognized by a grayish line, placed between the enamel and the ivory of the crown. Cuvier has given a good description of it, and Blandin, who exhibited it in his lectures, compares it, not without reason, to the membranous follicle, interposed during youth between the articular extremities of bones and the incrustated cartilages.

[TO BE CONTINUED.]

Letheon.—Dr. W. T. G. MORTON is still pressing his claim before Congress, for remuneration for the claimed discovery of the anaesthetic properties of sulphuric ether. He is backed in his claim by the names of 130 of the surgeons and physicians of the Massachusetts General Hospital, and members of the Massachusetts Medical Society.

THE DENTAL NEWS LETTER.

MARCH, 1853.

MECHANICAL DENTISTRY—ITS POSITION AND IMPORTANCE.

We have long thought that this branch of the profession did not receive that degree of importance to which it is justly entitled, and have deemed a few remarks on the subject not merely appropriate, but demanded.

Most authors and writers on dentistry have dismissed this branch with a few common-place, stereotype remarks, as apparently unworthy and undeserving a serious discussion, and not *only* so, but some have endeavored to cast odium upon it as being only mechanical, and consequently of hardly secondary importance. The same opinion greatly prevails among the profession generally, as evidenced by the common remark, "Oh, he may be a good mechanical dentist," implying that he fills an inferior position, and has much yet to learn.

We need not pause to make quotations in support of these assertions, nor is it necessary; indeed, it is not so much in published matter as in conversation with members of the profession that we find this feeling prevails, and the many will at once acknowledge the truth of the above assertion, that mechanical dentistry is looked upon as of but inferior importance.

Now we are disposed to defend it, and shall endeavor to show that it is deserving of a higher stand than has been accorded it.

The day will come, and probably soon, when, in our large cities, (in sparsely populated districts it is not probable, or even practicable,) the two main branches in dentistry will be entirely separated, as they should be, and we have no reason to fear that such division will prove detrimental, but, on the contrary, will be of material benefit to the art or science of dentistry; for then the operator on the living teeth can devote his entire attention to their treatment and preservation, while the mechanical dentist will concentrate all his energies and abilities on his own specialty.

None can deny that there is abundant room for such devotion in both branches respectively, for comparatively but few have arisen to eminence in either, while many have not reached mediocrity. Therefore we are desirous of placing mechanical dentistry in its true position, in presenting its claims to a respectful consideration.

A good mechanical dentist is not made in a day, a month or a year. Indeed, it is not every one that can be made a workman, no matter what time or instruction may be employed. It requires quite as much of a gift, or mechanical ability, as do operations upon the natural teeth. A suitable natural capacity, therefore, is absolutely requisite to begin with, and a long and thorough course of instruction, which includes the education of the *head* as well as the *hands*, maturity of judgment, a fund of experience, and a great degree of facility in the use of tools, to which, of necessity, must be added a thorough acquaintance with the anatomy of the parts, their functions and diseases—quite as much so as in the surgical dentist. All these are strictly and imperatively demanded in the formation of a competent and skilful mechanical dentist. Is not this true? and if so, is there not some ability necessary to accomplish all this? Why then should not this branch of dentistry be entitled to the position and importance we claim for it? But we have yet some details to enumerate which will elucidate our position and prove, we trust, beyond a doubt, that the requirements and abilities which we have claimed for the mechanical dentist are positively demanded, and absolutely necessary to the correct and faithful discharge of his professional duties.

The cry has been raised that bad dentistry is the cause of so many artificial teeth being required.

This is to some extent true; but let the cause be what it may, we have only to deal with facts. Still, we will venture the assertion that many teeth will necessarily be lost, notwithstanding all that the best educated and most skilful dentists can do; and the only corrective to the loss of so many teeth, aside from bad dentistry, is, that the public be taught the great necessity of early attention to the teeth, that in youth and even infancy the duties of the dentist are required, and their own attention demanded.

We must, however, take things as they are, and make the most of them.

From statistics furnished us by those conversant with the subject, we are informed that at least *a million and a half of porcelain teeth are manufactured yearly in this country*, some of which (in consequence of their superiority over the European article) go to Europe. but by far the larger proportion are used at home.*

* Dr. Gardette, in a recent paper, says, "The era in which we live has been prolific of improvements in the manufacture of teeth." The same writer very facetiously remarks, in reference to the vast number of teeth manufactured, "that there is some danger of our being nicknamed the nation of China teeth."

This fact clearly demonstrates that the mechanical dentist has a work to perform, and that one of no small moment; therefore, we argue that, as artificial teeth are required, some persons must insert them, and to do so properly, should be educated with that object in view. That there is, then, a demand for mechanical dentists will be at once conceded, and we wish now to show that their functions are neither trifling nor unimportant.

The substitution of artificial teeth is a neat and delicate, as well as an important operation to both operator and patient. What can be of much more importance to persons who have lost their teeth—and in consequence have, to some extent, lost their health from imperfect digestion, owing to their inability to masticate, and who, in consequence, have but an imperfect pronunciation—than the substitution of those lost organs, and that the substitutes shall be comfortable to the wearer, performing all the functions (or to as great an extent as possible) of the lost teeth? This is an operation where not only the comfort but the health of the individual is concerned, and as such, demands the best talent of the profession.

In adjusting artificial teeth to the mouth, there is to be observed, first, that the substitutes harmonize in shade, shape and size with the complexion and features; secondly, that they shall “fit,” or be accurately adapted, and, thirdly, that they shall be so applied as not to destroy, or even injure the natural teeth, to which they may come in contact.

These main points, with many minor ones which might be named, call for mature judgment and good mechanical skill.

Again, in correcting *irregularities* of the teeth the mechanical dentist plays his part, for to him, of right, it belongs to conceive, make, and adapt just such contrivance as is most applicable to the peculiarities of the case, and that will the more certainly and expeditiously accomplish the purpose required. Both these operations show conclusively that his functions are not limited to making casts, fitting teeth to plates, and soldering and burnishing them, as many would have us suppose, but embraces the safety and preservation of the natural teeth as well, and to a far higher degree.

What is the filling of teeth but a mechanical operation, well or poorly done, according to the amount of practice and skill possessed by the operator? Yet the treatment of the teeth, we will allow, is another and important matter, and belongs to the surgical dentist.

To sum up the functions of the mechanical dentist, and in answer to the following question—what amount or proportion of the practice

of dentistry is dependent upon the mechanical principles?—we reply, the shaping and tempering instruments, (a very necessary qualification to the dentist,) shaping the cavity preparatory to filling, filling teeth, filing teeth, scaling teeth, correction of irregularities of the teeth, extraction of teeth, and the substitution of artificial teeth. All these, we assert, are mainly mechanical in their practice, *but we do not say that none other than mechanical principles are involved.*

A discussion that took place in the Mississippi Valley Association of Dentists, last year, contains a sentiment that we will venture to repeat in this connection, as showing how much of dentistry is mechanical. The subject under discussion was the propriety of patenting improvements in mechanical dentistry, and it was urged, by one or more of the members, that it was allowable for various reasons, which were given, but that he would object to patenting any thing not mechanical, or any thing in our profession calculated to alleviate the sufferings of poor humanity in the treatment of diseases. In opposition to patents in the profession, it was argued that if all that was mechanical in dentistry were patentable, there would be but little left, and the following anecdote was given for illustration. An Irishman wished his gun *repaired*, and, on examination, it was found to lack a *lock, stock and barrel*, the only thing left being a *flint*; the application of which was, that all those who contended for the right to patent all that was mechanical in dentistry were in as bad a fix as the Irishman, for the greater portion could then be patented.

The practitioner who, at this day, boldly asserts that he knows nothing of mechanical dentistry, and boasts of his ignorance of it, in thus endeavoring to cast odium upon it, only exposes his own insufficiency to practice his profession, for upon mechanical principles greatly depends the correctness of his practice.

We assert boldly, that the improvements in mechanical dentistry within the last few years, has outstripped surgical dentistry. In proof of this, we need but refer to the rude attempts at artificial dentures which may be found in dental museums, and in many private collections, many of which have been made but comparatively a few years, and many, if not all, dentists can refer to cases made but a few years since, of which they are now ashamed.

We remember a case which came under our own observation, which has some bearing on this subject; showing the inferior workmanship, as generally made some eight or ten years ago. A gentleman called upon us to inquire where he could get (to use his own expression) “a good set of teeth.” We directed him to a dentist, but he objected, on

the ground that he feared the price would be more than he was willing to pay. On inquiring what he had paid before, he replied, "*Fifty dollars for a full set of teeth*," and putting his hand in his pocket brought out *three* full sets of teeth, saying, "*I have a pocket-full of teeth, but none for my mouth.*" He had paid fifty dollars each to three different dentists, and still had no teeth he could use, or that were of any service to him. Now we dare say that a similar circumstance is not likely to occur at this day, for the advancement in this branch is evident to the most superficial observer in the profession.

Dr. Hudson, of our city, it will be allowed, treated and filled teeth well; but can it be demonstrated that any one in his day could fabricate equally as good a piece of mechanical work, work at all comparable to that now made? In the advance thus made, something, to be sure, is due to the improvements made in teeth; but equally great improvements have been made in the mechanical department—in the arrangement, permanency, and consequent usefulness of artificial teeth.

We may well feel proud of the exhibition made in this branch at the "World's Fair." It gave indisputable evidence of great improvement, beside its superiority over the same kind of work from other countries. We of this country had much to boast of in that *exposition*, not the least of which was American dentistry.

We urge, then, that this branch should be fostered and its practitioners encouraged; that it should be respected and dignified as its merits deserve. Even in its mechanical relations, as generally understood, it has claims upon us for our respect; but when we combine with these abilities what we think strictly belongs to this branch—an intimate acquaintance with the anatomy and pathology of the teeth and mouth,—we conclude, then, that the position we claim for it is not too high, nor its importance and utility magnified.

In conclusion, then, let us assure young practitioners that there is in this wide field, as sure a road to professional eminence and usefulness, as in the surgical branch of dentistry, and that the day will soon come when this sentiment will prevail, and the acknowledgment be made.

Continuous Gums.—We would call attention to the translation from Delabarre, which will be found in our pages, particularly for the bearing it has upon the discussion which has been going on between Drs. Allen and Hunter. We would take this occasion to say that the translation was made solely by Dr. E. Wildman, of Philadelphia, and *not* by Dr. Badaraque.

Dental Associations.—In our pages will be found a report of the organization of a County Dental Society, in Allegheny County, Pennsylvania. There is also, we have been informed, a City Dental Society, in Brooklyn, N. Y. These are favorable indications and promise well to the advancement of the profession. We have seen the usefulness of such organizations, and are surprised that every state in the Union has not its State Society, at least; and we think there is room in the more thickly populated districts for County Societies, including the cities. Such institutions, we are sure, would be of great service to the individual members composing them, independent of the healthful influence they would have upon the public mind.

There are two important objects to be gained by the formation of such associations. First, that new facts may be discussed and elucidated, and thus much information be obtained; and, secondly, that by the interchange of sentiments and opinions, the courtesies becoming the members of a liberal profession, may be enjoyed.

There always has been, and is yet, entirely too much selfishness and petty jealousies among dentists, and these preclude them from very many advantages which they might enjoy in an associated capacity. All this is palpable to every intelligent member of the profession, and may be corrected, to a considerable extent, by the formation of associations for mutual improvement. Then let the work go on, and instead of our having only some six such organizations, let there be at least one in every state.

There are now, as nearly as we can ascertain, about *four thousand dentists* in the United States, which would give (computing our population at only twenty millions) *one dentist to every five thousand inhabitants*. The number, therefore, may be very sensibly increased, especially as the public become informed and shall properly appreciate the profession of dentistry; beside, this number of dentists can, by united efforts, make public opinion on this subject, and they owe it to themselves and the profession they practice, to use all honorable means to promote its interests and usefulness.

We append the following extract, from Professor Bache's valedictory to the graduating class of the Jefferson College, which will apply with as much force to the dental as to the medical profession:

“Beware, gentlemen, of professional jealousy, or the appearance of such jealousy. Defend the professional reputation of your brethren when you can do so with truth, and be silent when you cannot. Manliness and candor do not require that you should make known your unfavorable opinion of others; and much less do they require that you

should express such an opinion of a professional brother. Sooner or later, the incompetency of the badly-instructed, or of the indolent who fall behind the medical knowledge of the times, will become apparent to the community, and the individual will sink to his proper level. But even if it should be otherwise; even if a plausible manner should blind the public, and give a bubble reputation to an incompetent practitioner; still it is better to bear the evil than incur the greater one of producing bickerings, heart-burnings, and recriminations, by pronouncing publicly an unfavorable opinion as to his fitness to practice. Besides, it should be borne in mind that your opinion, though sincere, may, after all, be an erroneous one."

Our Plate.—We furnish our readers, in this number, with a very accurate lithograph likeness of Dr. J. D. WHITE, one of our principal contributors.

The readers of the News Letter, are familiar with him, through his varied productions on subjects connected with the practice of dentistry, and they will agree with us, that the doctor is a practical man and belongs to the progressive party,—having at heart the advancement of the profession.

He is now Professor of Anatomy and Physiology in the Philadelphia College of Dental Surgery, an honor well deserved and a position where his usefulness will be felt and appreciated.

A Review of the Remarks on the Professional Education of Dentists, by JOHN TRENOR, *Dentist, of New York.* BY AMOS WESTCOTT, M. D., Professor of Theory and Practice in the New York College of Dental Surgery, Syracuse, N. Y.

This pamphlet was published some months since, and has been noticed in most of the dental periodicals, and we need only say that it is ably written, and courteously worded, and leaves but little to be said in defence of Dental Colleges.

The January number of the Baltimore Dental Journal, contains an article from the pen of Dr. W. W. H. Thackston on the same subject, replying in *extenso*, to all the objections urged against Dental Schools by Drs. Trenor and Gardette. It is somewhat severe, but to the point.

We would call attention to the advertisement, on cover, of a person desiring to form an arrangement with some dentist in good practice.

We are well acquainted with the advertiser, and can recommend him as a good operator. He would be an acquisition to any office.

The Southern Journal of the Medical and Physical Sciences. Published at Nashville, Tenn. : January, 1853.

This is the first issue of a handsome bi-monthly of seventy-two pages, one of the editors of which is Dr. B. Wood, practicing dentist of Nashville, who has charge of the department of Dental Surgery. His contributions to our own and other journals, will be favorably remembered by the profession. May success attend the enterprise.

We will cheerfully receive subscriptions for it.

The Dentist.—The newest of interest at home and abroad. Published and edited by C. W. L. SCHMEDICKE, Practical Dentist, Berlin. Teacher of Dentistry, and member of the Medical and Dental Societies of Berlin, etc. Published monthly : 24 pps. December, 1852.

This is the title of a periodical published in Berlin, Prussia. We give below the table of contents with some selections :

Treatise on Decay of Teeth, by Dr. Rossi, Paris.

Treatise on Mechanical Dentistry, by J. Lefoulon, Paris.

This is one of a series of articles, and treats of the insertion of Pivot Teeth. The following suggestions occur in the article, which, in the main, is a somewhat antiquated affair : Suggests gold or platina for pivots with a thread cut in them ; wraps the pivots with a metallic leaf of lead, gold or platina. Avoid the lead, if the crown of a natural tooth be inserted, because of the probability of the lead oxydizing, which may change the color of the tooth ; speaks also of a gold cylinder in the root, as a good plan when there is much decay there.

Essay on the relation of Dentistry to the rest of Medical Sciences, by Dr. A. F. Talma, Brussels, Dentist to the King of Belgium.

Case of Death by Chloroform.

Soap for the Preservation of the Teeth, translated from the Boston Medical and Surgical Journal.

Chloride of Lime, in cases of scurvy of the gums and ulcerations of the mucus membranes of the mouth.

External Application of Chloroform.

Historical :—Among the inventory of furniture and jewels of Charles Vth, was found, on his death, several remedies for hemorrhage and eighteen files which had been used to file the Emperor's teeth.

News :—The teacher of Dentistry, at the Surgical Institute, at Lemberg, Austria, V. Straseky, has received the title and rank of Professor Extraordinary of Dentistry.

A new Paste for Plugging the Teeth, termed Bengal Paste, has

been invented in Paris, which the patient can apply himself. (Good bye to the profession now.)

Statistical.—It is shown by the list of patent duties, that there are at this time four hundred and eleven practicing dentists in France, (a very few more than are now practicing in the city of New York alone, and this number only, to supply a population of over thirty-five millions of inhabitants).

Gutta Percha Gum.—The editor advertises that he will prepare and supply this article to order, of any tint or color.

We were surprised at the entire absence of original matter, and that there were no communications or extracts from German dentists. What a contrast this with our American dental periodicals.

For the Dental News Letter.

COMMENCEMENT OF THE PHILADELPHIA DENTAL COLLEGE.

The first Annual Commencement of the Philadelphia College of Dental Surgery, took place on the 28th of February, at the Sansom Street Hall. Notwithstanding the disagreeable weather, a numerous and respectable audience witnessed the interesting ceremonies.

The degree of Doctor of Dental Surgery was conferred by Professor Townsend, Dean of the Faculty, upon the following graduates :

S. Townsend Brown, Phoenixville, Pa.; Geo. W. Emerson, Washington, D. C.; James S. Gilliams, Philadelphia; Henry Garrett, Wilmington, Del.; R. Allison Miller, of Huntingdon, Pa., and Arthur B. Williams, of Washington, D. C.

The Honorary Degree was conferred upon the following gentlemen : Wm. Bradley, M. D., Stephen T. Beale, M. D., S. Dillingham, J. F. B. Flagg, M. D., Wm. W. Fouche, Jacob Gilliams, M. D., James M. Harris, M. D., John H. McQuillen, M. D., S. L. Mintzer, Dan'l Neall, Frederick Reinstein, Edward Townsend, Charles Townsend, Jr., D. B. Whipple, M. D., C. C. Williams, and Samuel Stockton White, of Philadelphia; Thos. W. Evans, of Paris, France; J. F. Flagg, M. D., of Boston; Jas. Fleming, M. D., of Harrisburg; O. R. Post, of Brattleboro', Vermont, and Wm. R. Webster, of Richmond, Indiana.

Dr. Townsend, after announcing the honorary diplomas granted to the gentlemen named in this list, took occasion to remark, that in conferring these degrees the faculty were governed by considerations which have an ample warrant in the peculiar circumstances of the College and the profession.

Many gentlemen, he said, who now adorn the profession, entered it when the opportunities for collegiate instruction and collegiate honors

were not within their reach. They had earned from the public, and from their brethren, at least an equal rank with those who now, by official position, have the legal power to certify their worthiness; and it was felt to be but just and decorous to accord the claim. The effort which the College is making to establish a formal standard of character in the profession, while it owes this justice to deserving men, and could not without invidiousness withhold it, will also be greatly forwarded by the frank acceptance of this distinction of the schools, on the part of men of acknowledged merit, and by the joint and cordial concurrence of professors and practitioners, the standard may, in good time, be thus raised, and reputation be measured as in the kindred branches of the healing art. In this endeavor every worthy member of the profession is equally concerned, and we look for a just appreciation and generous assistance from all those who have the common interest and honor at heart. Moreover, we are now, in accordance with the objects and policy of our institution, granting the title of "Doctor of Dental Surgery" to successful candidates for that honor, who are but emerging from their pupilage, and, however worthy, are but commencing that process of self-culture which *alone* has made so many of our compatriots the graduates of experience. These novitiates, in justice, may not monopolize the parchment, and so outrank their equals and superiors. We would have our diploma pass for what it is worth, but we would not insist upon a distinction which, in such case, would be but accidental and artificial. It is from a feeling of professional decorum, an impulse of even-handed justice, and a due regard for the symmetry of our system, that we thus, with so much apparent freeness, distribute the honors of the school. We have not in any instance violated propriety, departed from our legitimate aim, nor exceeded our discretion; indeed, we have not gone nearly to the limits of the rule which governs us. The considerations which restrain us as yet, need no other explanation than that we do not assume that we have the right or the power, any more than we have the purpose, to negative any gentleman's just pretensions, which we have not thus formally acknowledged. We mean to do our duty, simply and earnestly, without overstepping the modesty of our position. It is a delicate trust, to be considerably exercised; and we assure our brethren that we will not abuse it. We invite their aid in accomplishing the great work before us; give us that first, and afterward criticism, if we are found to deserve it. We need but to add that, if dental colleges had hitherto been generally established, easily accessible, and but half a century old, we would, consistently with our present views and procedure, be as chary of honorary degrees

as the most scrupulous of the medical schools are, for the reasons which arise out of their very different circumstances.

The degrees were given in the English instead of the Latin language. The diplomas were also written in English. This, although an innovation upon an old custom, was favorably received by the audience.

Professor J. D. White delivered an eloquent valedictory address. The religious exercises were conducted by the Rev. Dr. Howe.

The proceedings were enlivened by the strains of an efficient band, under Mr. B. C. Cross.

The institution is a new one, and will, no doubt, take rank with the best medical schools in our city.

In the evening the Professors, the Class, and some invited guests, numbering in all over fifty-five persons, sat down to a strictly temperance repast, the toasts being drunk in water. After the eating, which we must say was well prepared, generously supplied and well appropriated, Dr. Townsend toasted the Baltimore Faculty, to which Dr. Harris replied; after which, a loud call was made for Dr. Bond, which brought that gentleman to his feet, when he made a very humorous and interesting speech, keeping the table in a roar, and in conclusion gave, "the Philadelphia College of Dental Surgery," to which Dr. Townsend responded. Dr. Elder now made some very appropriate remarks on Dentistry and Medicine.

Dr. Flagg, of Boston, was now toasted, but being absent, his brother, Dr. Flagg of Philadelphia, replied, and in the course of his remarks, in alluding to the introduction of the forceps invented by his brother, at a time when nothing but the German key was used in dentistry, related the following amusing anecdote: That in his early professional life he happened to be at the Catskill mountains, enjoying the mountain air, where he found a young Irish gentleman, who was suffering from the tooth-ache, and offered his services to extract the tooth. While preparing for the operation, the sky was perfectly cloudless, but when ready to apply the key the sky became suddenly overcast, as is not unusual in those elevated situations, and just as he had applied the instrument a sudden clap of thunder came upon them; the lightning striking a tree but a short distance off, the fluid played upon the polished instrument, and shocked both operator and patient; but the tooth was extracted, and the operator dropped the instrument with the shock, exclaiming, "Heavens! what lightning." The patient, clapping his hands to his face, roared, "J——s, I thought it was a part of the operation."

Dr. White being called for, made a few appropriate remarks.

Mr. Birney, editor of one of our city papers, was called on, and in the course of his remarks alluded to the success of Mr. Evans, of Paris, as an evidence of the appreciation of American dentistry abroad, alluding to that gentleman in very complimentary terms.

Rembrandt Peale, the celebrated portrait painter, being present, was called up for some remarks, especially in reference to his father, as having made the first porcelain or composition teeth in this country. He stated that his father had, after many experiments, succeeded in making a very good imitation of the natural teeth, some of which he wore in his own mouth, not only making the teeth but mounting them. He also gave an instance of the mode of extracting teeth in Florence, Italy, years ago, on his first visit to that place. A man would ride into the public square on horseback, and, without dismounting, the patient standing by his side, remove the teeth with the greatest dexterity, while his attendant distributed his cards, inviting the public to call at the Doctor's office.

He had also painted a portrait of Gen. Washington, from life, in 1795, at the same time that Mr. Stuart painted his portrait. The difference between the two portraits, in reference to the expression of the mouth, created considerable discussion, and was owing solely to the artificial teeth worn by Gen. Washington. The set he wore when he sat to Mr. Peale, was made by the elder Greenwood, of New York; but the set he wore when painted by Mr. Stuart, was made by another person, and gave his mouth an unnatural expression. He afterwards abandoned them entirely.

After further remarks from various persons, the meeting adjourned, well pleased with the festivities, and wishing God speed to the Philadelphia College of Dental Surgery.

SPECULATIONS UPON INFLAMMATION OF DENTINE OR TOOTH-BONE.

BY PROF. ELISHA TOWNSEND, M. D., D. D. S.

It is a curious subject for speculation and hypothesis, to examine the analogy existing between the inflammation of dentine, that excessive tenderness, which we find in the fibrilla of nerves, so far from the pulp and main trunk from which they radiate, and the same tenderness in other and more highly organized parts of the body. That this, in the tooth, is inflammation of its structure, is, I believe, now generally conceded.

The changes in the living organism which constitute inflammation are,

increased heat, increased volume, redness and pain. The heat, swelling and redness meant are such as can be observed by the practitioner, or are obvious to the observer :—not to the patient, or to the patient only. The heat is ascribed to the exalted or enhanced vital action of the part ; the swelling, to increased quantity of blood sent into it, and the redness, to the enlargement of the smaller vessels which allows the red particles of the blood to enter ; such as, from their smallness in health, carry only the finer watery or serous particles of that fluid. Inflammation of the tunica sclerotica, or white coat of the eye, or more usually the tunica conjunctiva, which covers the eye-ball in front, afford a good opportunity of observing this change. The reddened eye-ball, when moderately inflamed, shows these vessels like a web of red threads, interlacing each other very distinctly. In considerable inflammations of the skin and of the soft parts which it covers, all the signs or conditions are clearly observed, the redness by the eye, the swelling and heat by the touch of the hand. But the redness and heat are only obvious while the surface remains unbroken, and the part still retains its vitality ; after the destruction of the texture, that is, after ulceration, the purulent matter and the dead particles of skin, muscle, &c., take a different color, white, yellow, or darker, but the redness is lost, because the vessels which contained the red globules of blood before, are now broken up and destroyed, and it is only around the edge of the ulcer that a line or band of redness continues, for the reason, that there the inflammation is still below the stage which dissolves or destroys the texture. In the solid parts of the body, such as the common bones, tendons and teeth, inflammations of their interior structure cannot show to the eye, or indicate to the touch, the enlargement of the vessels, because of the firmness and unyielding form of their organization. The vessels, however stuffed or engorged, have not sufficient force to distend their bulk, or press out their fibres into larger volume. For the same reason the redness is not apparent ; that is, the vessels are held by the stony or earth fabric too firmly within their ordinary size and compass, to allow the red particles of the blood to enter so as to redden them distinctly, unless, indeed, in the spongy and cellular parts found in the ends of the long bones, or the like open texture of other bones. Where a bone is ulcerated, the surface, freed from the usual pressure, does exhibit the blush or tint which we see, deeper and more decided, in the softer and more open muscles and skin. The increased heat which belongs to inflammation is, from the nature of the case, not easily, or not at *all*, discernible in so small a cavity, undergoing also so slow a process of inflammation as belongs to caries in a

tooth. Now, as each tooth is supplied with a branch or branches from the great maxillary nerve, which enters at the point or apex of the root, and is there of such size as to be readily and easily seen; and as this nerve is endowed with sensibility of the same kind as that which belongs to all the cerebro-spinal nerves, it is of course capable of the sensation of pain common to all the sensitive textures of the body, and the patient is as conscious of injuries produced by disease, and by mechanical and chemical irritants, there, as elsewhere. There is, I believe, nothing ambiguous or indistinct in tooth-ache; at least, no one who has ever had a first rate paroxism of it, will question *this* pathological proposition, that the man is conscious of it; and, also, that it is about as well proved as it can be.

It is not of inflammation of the dental pulp I am now speaking, but of inflammation in the body of the tooth, nearer the surface, and communicating by an opening with the surface—I mean, disease and decay situated at a distance from the pulp. In such an opening, great tenderness is felt upon the touch of hot or cold fluids and hard bodies, or indeed from foreign bodies of any kind. Now, the facts of the case which concern us are, that such a cavity, so exposed, and thus located at a distance from the pulp, and, moreover, separated from it by sound and healthy bone, is familiar to us in our daily practice. It is also a fact, that the diseased portion may be removed, leaving a sound face to the opening or cavity every where, so that the tenderness of the tooth is either entirely removed or so much abated as to bear the touch of foreign bodies and hard substances, and the pressure of a filling wedged into it with such force as to completely occupy it, and prevent the ingress of even the most permeating fluids thereafter. The operation of removing the decayed parts must cut off the vessels and filaments of nerve in which the inflammation and pain previously existed. It is simply an amputation of a part of a living member, or organ of the body, such as is practiced in general surgery upon the softer textures of the body; and in principle it differs nothing from the excision of an arm, leg or finger. The resemblance is still greater when such amputation is performed for the removal of disease situated in the bone of any such member. The thigh or arm bone may be inflamed towards its outer extremity, it may be cut through in a sound and healthy part, without pain in the operation, so far as the bone is concerned, and the surface, it is well known, will remain free from disease—it will be as insensible, and as free from inflammation, as the same part was before the operation, and no painful alteration may ever afterwards be experienced in it. The same thing is true, in all particulars, of tendons. Both bone and tendon are living organisms; they undergo the changes

of growth and absorption, as do the most delicate organs and textures of the frame. I say, the bones and tendons, all of them, are alive; I do not say that they evince their vitality by all the signs that the most elaborate and complex structures afford. Their fibres are not contracted under the command of the will, as are the fibres of a muscle; they are not sensitive to the impression of all external agents, so as to transmit every impression to the brain, as the differently endowed skin is; but this is just as true of the stomach, the liver, the great absorbent vessels in the abdomen and chest, which carry the chyle into the circulation. It is true even of the heart; its fibres do not obey the will, though they are eminently contractile, and the man is as unconscious of the touch of the blood in its interior surface, as he is of the merely vegetable-like actions in the circulation of the bones. The organs of the body are endowed with just such properties and powers as fit them for their varied offices. They have each their rarified modes of life, but they are all equally alive. The brain bears tearing, bruising and cutting, without indicating pain. Is it, therefore, not alive? Its great activities are carried on usually without consciousness; is it, therefore, without life? We must distinguish the qualities of vitality, as they are modified in all the organs, if we would rightly understand our own words, and have clear ideas of things. In healthy digestion the man is wholly unaware of the process, vigorous and active as it is; and in sleep we have life, without consciousness any where. Again: there is life in a paralytic arm, though it is wholly without sensibility to pain, or capacity of motion. For years the palsied member hangs to the trunk, and all the processes of nutrition and absorption proceed regularly in it; the pulse beats, the veins return the blood, and the lymphatics return the outworn particles of the member as regularly as those of any other part of the living body. Here there is life with the nerves of sensation cut off, and it is every way analogous to a tooth from which the pulp, containing the sensitive nerve, has been removed. A tooth whose sensibility is destroyed by the excision of the dental nerve, is just as dead, and just as much alive too, as the palsied arm; that is, its changes induced by cold, heat, and violence, are no longer carried to the brain, and made conscious there; and so stands the palsied arm, even with respect to its naturally highly sensitive fingers, skin and muscles. As for the bones of such an arm, their condition is no wise changed. Cutting or bruising them in their best condition of health, taking care not to touch the larger branches of spinal nerves which enter them, never produces any pain. Yet they live—live perfectly, both in their normal state and that which we are now considering. [TO BE CONTINUED.]

THE DENTAL NEWS LETTER.

VOL. VI.

PHILADELPHIA, JULY, 1853.

No. 4.

The following "*Thesis*" on the "Treatment of the Exposed Dental Pulp," as originally written, has been, at our request, furnished us for publication. We would ask for it a careful reading, feeling assured that it will prove both profitable and interesting. Much inquiry has been made as to the time, and by whom, *Arsenic* was first used in the treatment of the Dental Pulp. This may furnish an answer to the question; it will at least give many interesting facts connected therewith.—ED.

INAUGURAL THESIS.

On the Treatment of the Exposed Dental Pulp, Preparatory to the Operation of Filling—for the Degree of Doctor of Medicine. Session of 1843-4. in the Jefferson Medical College.

BY J. D. WHITE, M. D., D. D. S.

TO THOMAS D. MUTTER, M. D., *Professor of the Principles and Practice of Surgery, &c., &c., in the Jefferson Medical College of Philadelphia* :—

As an humble token of respect for your many virtues, and the high place you occupy in the estimation of the public and the profession, for the valuable improvements you have introduced into the medical art, and the profound judgment which marks your very brilliant career as a *teacher* and *practitioner*, this paper is gratefully dedicated, by

Your faithful and obliged friend, J. D. WHITE.

A proper method of treatment of the dental pulp, when exposed by decay of the bone, is a branch of the healing art so full of interest to every individual, and especially to the physician and dental practitioner, as to need no apology from me, for selecting it as the subject of the present essay; and as it is a subject both intricate and interesting, it will not be surprising to find methods of treatment numerous and contradictory in proportion, urged too, with considerable parade by the empiric as well as the better learned, and that withal, neither have settled upon any thing sufficiently certain to commend itself to the suffering patient.

As an accurate knowledge of the anatomy, *physiology* and *pathology* of the teeth is indispensable to a proper understanding of the treatment, I will proceed to their consideration in as concise a manner as the nature of the subject will allow.

THE ANATOMY OF THE TEETH.—Anatomists have divided a tooth into three parts, viz: a *body*, or *crown*, a *neck*, and a *root*. The body is that portion which appears above the gum, and is indispensable to the proper performance of the function of mastication. It is protected by a semi-transparent crystalline and insensible substance, the enamel. The neck is embraced by the gum; it is about a line in breadth, and intervenes between the cessation of the enamel and the margin of the alveolus. The remaining part is the root, which articulates by the *gomphosis* articulation with the alveolar processes of the maxillary bone. "The teeth are composed of an *organic* and of an *inorganic* substance, are sparingly supplied with blood-vessels and nerves, from which they derive vitality and nutrition, and an exquisitely modified degree of sensibility."

"There are three different textures entering into the composition of the structure of a tooth; two of these are peculiar to this organ, viz: the *ivory*, which forms the body and root, and the *enamel*, which invests the crown of the tooth. The third texture, the *cementum*, is analogous to the *crusta petrosa* in the teeth of animals, and bears a very close resemblance to true bone in its structure."

STRUCTURE OF THE IVORY.—"The ivory of the tooth, both in man and animals, shows it to consist of a series of minute fibres, which give off branches from point to point, and terminate in an exceedingly delicate arborescent ramification. They are believed to be tubular. The larger ends of these tubular fibres open upon the surface of the cavity of the tooth, while the smaller and ramified extremities terminate at the surface of the ivory; the inter-tubular spaces being occupied by a transparent and very dense ivory, in which the minute branches of the tubuli find room to ramify."

STRUCTURE OF THE ENAMEL.—"When the enamel fibre is closely examined, it appears marked at pretty regular distances by transverse lines, the interspace between each of these lines being occupied by a minute crystalline hexagonal block, and the entire fibre being composed of a continuous series of such blocks. These transverse lines are composed of the proper *enamel membrane*, which bind together all the crystalline fibres of which the enamel consists. It is also a bond of union between the enamel and the ivory."

STRUCTURE OF THE CEMENTUM.—"The cementum is a later pro-

duction than the two preceding textures; it is absent in the early periods of the formation of the tooth, and is developed only as age advances. Two opinions are received with regard to its mode of formation. According to the first, it results from ossification of the investing membrane of the root of the tooth; and, according to the second, it is due to a true secretion from this membrane. The cementum forms a thin layer, which invests the entire root of the tooth, from its neck to the extremity of its fang, where it is thicker than at the neck, and as age advances, it is deposited upon the surface of the dental cavity. This deposit commences at the upper part of that cavity, and gradually increases with the years of the individual: in very old persons it so completely fills the dental cavity, as to leave behind no rudiment of its previous existence."

THE BLOOD-VESSELS OF THE TEETH.—"The arteries which supply both the upper and lower jaw, and which transmit branches to the teeth, have their origin from the *internal maxillary* branch of the *external carotid*. This vessel, after giving off small branches to the ear and the speno-spinal artery, to be distributed to the dura mater, parts with the inferior and superior maxillary branches, which passes downwards between the pterygoid muscles, to the posterior maxillary foramen. In its course through the canal of the lower jaw, it sends branches to every tooth beneath which it takes its course, and sending forward others to the incisors, it emerges from the bone at the mental foramen, and is ultimately distributed to the chin and lips, where it anastomoses freely with the branches of the facial."

"The upper teeth receive their supply of blood from two branches. The molares from the *alveolar* or *superior maxillary*, which, taking its rise behind the antrum, enters the posterior part of the bone, by the foramina of its tubercle, and its branches are distributed to the three molar teeth, to the posterior part of the membrane of the antrum, and to the substance of the bone. The infra-orbital branch arising behind the orbit, passes through the infra-orbital canal, sending branches, in its course, to the bicuspidates, cuspidatus and incisors, as well as to the antrum maxillare and adjacent parts. It makes its exit at the sub-orbital foramen, and finally ramifies over the cheek, where it also communicates with the branches of the facial artery. The veins by which the blood is returned from these parts, after following the course of the corresponding arteries, form the internal maxillary vein which terminates in the external jugular."

THE NERVES OF THE TEETH.—"The *fifth pair* of nerves consists of two distinct parts; a *sensitive* and a *motor* portion, is the grand

medium of sensation to the head and face. Its sensitive part leaves the semi-lunar ganglion in three great branches—the *ophthalmic*, the *superior maxillary*, and the *inferior maxillary*. There is a fasciculus which passes by the ganglion, and unites with the third division, constituting the true motor portion of this nerve. It is only the *second* and *third* divisions of this nerve which I shall consider. The *superior maxillary nerve*, after distributing small branches to the orbit, the skin of the temple, and of the cheek, gives off the *spheno-palatine*, the *vidian*, the *palatine*, and the *alveolar*, whilst the trunk is continued under the name of *infra-orbital*. The vidian nerve forms the means of communication by its deep seated branch, with the great sympathetic nerve. The palatine branch is distributed to the palate, the membrane of the mouth and the gum, besides small branches to the nose, and others to the tonsils, &c.”

“The *ALVEOLAR* branch of the superior maxillary, after giving branches to the cheek and buccinator muscles, enters the maxillary bone by small twigs through the little foramina in the tubercle, and supplies the whole of the superior molares. The trunk of the nerve, assuming now the name of *infra-orbital*, passes through the canal of that name, and whilst in its passage, gives off the branches which supply the incisors, cuspidatus and bicuspidates, after which it emerges through the infra-orbital foramen, and is spread out upon the cheek, constituting the principal sensitive nerve of that part of the face. The third division of the fifth pair, the *inferior maxillary nerve*, after distributing small branches to the neighboring muscles, &c., divides into two important nerves. The first is the *gustatory*; the second, the proper inferior maxillary nerve. A branch of the gustatory, by traversing the petrous of the temporal bone, in a retrograde direction, unites itself with the portio dura of the seventh pair, forming the *chorda tympani*. The trunk of the inferior maxillary nerve, entering the posterior maxillary foramen, passes through the whole length of the canal, giving branches to all the teeth under which its course lies; arrived at the mental foramen, it sends a branch forward to supply the incisors, and, emerging upon the skin, is distributed to the integuments and muscles of the neighboring parts.”

THE FORMATION OF THE TEETH.—“About two months after conception, if the jaws be examined with care, an extremely soft jelly-like substance is found lying along the edge of each maxillary arch. At the third month this has assumed rather a firmer consistence, and is contained within a shallow groove of bone, which constitutes the first step towards the formation of the external and internal alveolar plates. At

this period the pulpy substance becomes partially divided into distinct portions, and corresponding filaments of bone are seen shooting across from one side to the other of the bony groove, to form the future transverse divisions of the alveoli. These pulps are the rudiments or bases upon which the teeth are formed. At this time they lie upon the vessels and nerves which run along the bottom of the groove, and each is partially enclosed in a membrane or sac."

"At the fourth month, a small point of ossification is found upon certain of the pulps, and this is the commencement of the formation of the bony substance of the teeth. The ossific matter is secreted from an extremely delicate, thin, vascular membrane, which covers the surface of the pulp, and is closely attached to it by vessels. This membrane, which is termed the proper membrane of the pulp, is a propagation of the periosteum of the jaw. The sac which envelopes the whole is thick in its texture, and consists of two lamellæ, which are easily separable after a short maceration. These lamellæ are both vascular. This membrane is not attached to the pulp, except at its base, where the vessels enter; nor originally to the bony rudiments of the teeth, but only loosely surrounds them; its external part is, however, most intimately and inseparably connected with the gum, from which source it is supplied with its vessels and nerves, whilst the pulp and its proper membrane derive *their* organization immediately from the dental branches. The bone is first deposited on the points of the teeth, and assumes by degrees the appearance of a thin shell, covering the pulp and its proper membrane, which retire, as it were, as the bone continues to be deposited. It is obvious, therefore, that the bony shell is interposed between the pulp with its membrane, and the investing sac. When the shell of bone has proceeded so far as nearly to cover the original form of the pulp, the alveolar processes having become more developed, and consequently the alveoli deepened and more perfectly separated by the growth of the transverse plates, the pulp elongates at its base to form the root. It will be seen by the foregoing, that the outer lamina of bone is first completed, and that after lamina is deposited one within the other, the pulp still receding, until at length there remains only the permanent cavity of the tooth, lined with its proper membrane and filled with the remaining portion of the pulp, which now serve as the bed upon which the vessels and nerves ramify, previously to their entering the bony substance of the tooth."

THE FORMATION OF THE ENAMEL.—"When the bony shell has extended as far as the neck of the tooth, the external membrane or sac attaches itself closely to this part, though still loosely investing its

body. At this time a remarkable alteration takes place in its substance, which becomes thickened and much more vascular, particularly the inner layer, over the whole internal surface of which the vessels may be seen obviously enlarged, and capable of receiving a much more perfect injection. The object of this change in the condition of the membrane is to produce the increased supply of blood required for the secretion of the enamel. It now begins to pour out from its internal surface a thickish fluid, which is speedily consolidated into a dark chalky substance, and afterwards becomes white and hardened by more perfect crystallization. This is the enamel. It is first deposited on the points at which ossification had commenced, and by degrees covers, in one continuous layer, the whole crown of the tooth."

ENUMERATION OF THE MEMBRANES OF THE TEETH.—"The membranes which have been described, may be divided into *deciduous* and *persistent*. The deciduous membranes are the two lamellæ, which, forming the sac which envelopes the rudiments, secretes the enamel from the internal surface, and then becomes wholly absorbed. The *persistent* membranes are, first, the internal periosteum of the dental cavity, which, during the formation of the tooth, had performed the office of secreting the bone; and the periosteum of the root, which doubtless is a reflection of (3d,) the periosteum of the alveolus, of which that of the cavity just mentioned, is also most probably a production, according to the views of Dr. Blake. Thus the periosteum of the maxillary bones must be considered as the origin from which these three persistent membranes are derived."

THE ORGANIZATION OF THE TEETH.—On this subject there is a wide difference of opinion among authors, consequently it will be difficult to arrive at a positive conclusion; but the majority of physiologists at the present day, contend for the vascularity of the teeth as the only true view which can be taken, explanatory of the diseases to which they are liable. Still, however, many believe, with the celebrated Hunter, that they are entirely devoid of vascularity. This eminent writer rests his opinion principally upon the fact, that "he could not succeed in injecting them with coloring matter; neither could he trace vessels from the pulp to a growing tooth." "In growing animals fed upon madder, he found that the portion which was formed previously to the commencement of this diet retained its primitive color; whilst the part formed during the administration of the diet was affected by it, and turned red. Again, if the animal were permitted to live some weeks after the madder was suspended, to the preceding condition would be superadded a new layer of white." An eminent writer of this city,

Professor Horner, affirms "that these experiments, which are confirmed by my own observation, prove satisfactorily the total absence of blood-vessels in the texture of the teeth, and that the coloring matter, when fixed in them, does not depend upon a circulation, but upon it being deposited as the teeth grow, and left there permanently. The teeth are consequently not subjected to a commutation of particles, and to being continually remodeled as the bones are; but when once formed they remain in the same state without change."

Mr. T. Bell, on the other hand, asserts that "the coloring matter used for injecting hitherto, is composed of particles too gross to pass into vessels of such extreme tenuity as those of the teeth must necessarily be;" and as a proof observes, first: "I frequently examined the teeth of persons whose death had been caused by drowning or hanging, and invariably found the whole of the osseous part colored with a dull, deep red, which could not possibly have been the case if their structures were devoid of a vascular system." Second: "In many instances on purposely breaking a tooth immediately after extraction, where the pain and inflammation had been severe, found *distinct red patches in the very substance of the bone.*" He further observes: "It often happens that, in consequence of the use of mercury, or from dyspeptic affections, the gum and the edge of the alveolar process recede from the neck of a tooth, which thus becomes exposed, and if this part be then touched with a hard instrument, pain is immediately produced, which is always increased when the part is inflamed. It is obvious that the *periosteum* is not the seat of this pain, as that membrane is also absorbed to the same extent as the gum and the alveolar process are lost, and the bone of the tooth is in all these cases absolutely denuded."

Again, he says: "In filing the teeth, no pain is experienced until the enamel is removed, but the instant the file begins to act upon the bone, the sensation is exceedingly acute—the result certainly of the actual presence of nerves in the substance of the tooth itself."

Indeed, every dentist must be familiar with the fact, that the necks of many teeth become exceedingly sensitive when embraced too tightly by metallic bands for retaining in the mouth a partial sett of artificial teeth; and every dentist in successful practice, in attempting to plug teeth, must daily meet with an extremely tender condition of the bone in the teeth of young persons, and even in some who are advanced in life, immediately beneath the enamel, and sometimes through the whole substance of the bone, which is so acutely sensitive to the touch, as to render it impossible for the patient to bear the part to be properly prepared for the operation of plugging, until the sensibility by some

means is removed, which, if properly managed, is very easily done without the least pain, or injury to the pulp, and then the part can be cleansed of all decayed particles without exciting the slightest painful sensation; a fact, in the absence of all other proof, conclusive of the presence of nerves. Some contend, (Goodsir, Lintott and others,) that the tooth-bone, or ivory, receives its nutrition by the imbibition of fluids through tubuli, which commence by open mouths upon the walls of the dental cavity, and not by the passage of blood-vessels. It is probable that very dense and insensible teeth of *adults* are only nourished by the above process; but it does not seem probable that the teeth of *young* persons are also free from a vascular circulation.

PATHOLOGICAL CONSIDERATIONS.—When the pulp of a tooth becomes exposed to the air and fluids of the mouth, by a loss of a portion of the bone, it exists but a short time without becoming subject to active inflammation, and generally, too, of a very high grade, giving rise to acute pain, which may extend sympathetically to neighboring parts—the tongue, ear, temple and palate, and not unfrequently producing high febrile excitement of the whole system. Sometimes acute inflammation travels along the entire course of the pulp, passes out of the foramen at the apex of the root, and attacks the external membranes, the jaw and gums, occasioning intense pain and throbbing in the parts, when it produces what is termed “alveolar abscess.” At this period the whole of the pulp sloughs at the apex of the root. Indeed, so extensive are the injuries done to a tooth in such a case, that it rarely ever becomes useful in mastication, especially if it be one of the molares; for there is either a permanent thickening of the membranes of the alveolus left, which renders it tender on pressure, and extremely liable to re-attacks of acute inflammation, (and more so in some patients than in others,) or a *pyogenic* membrane is formed over the apex of the root, which keeps up a continual secretion of pus, requiring a fistulous opening in the gum for its exit, which is very annoying, if not injurious to the health of the patient; and if the abscess remains for any length of time, it will excite absorption of the alveolus and adjacent parts, and sometimes produce deformity of the face, and in irritable temperaments it may likewise occasion disease of a malignant character, which cannot be cured. This is certainly the most violent form of inflammation that can possibly attack a tooth; yet, withal, some recover in good constitutions, and become very useful in mastication, but in mild attacks of inflammation and sloughing of the pulp, without involving to any extent, the external membranes and neighboring parts, the inflammation may subside, and the tooth exist

without occasioning any irritation of consequence, and if firmly plugged with some pure metal, may subserve all the purposes for which it was by nature intended, for many years. Taking a hint from this, it is no more than rational, nay, the duty of the dentist, to endeavor, by remedial means, to render every case a mild one, or accomplish the same result in all cases where decay of the bone has extended so far as to expose the pulp. It is the least of two evils to resort to a destruction of the pulp. But we are told by the experienced and well educated of the profession that the destruction of the blood-vessels and nerves of the teeth should never be attempted in any case, for the purpose of plugging; for a loss of the internal pulp renders a tooth a dead substance and foreign body.* I cannot, and for several reasons, among which are the following, understand how this conclusion can be just.

1st. The alveolo-dental membranes receive their supply of blood from the periosteum of the alveolar processes. Mr. Bell asserts that the adhesion of the periosteum to the root is so firm as to prove its vascular connexion with the osseous substance of the tooth. If this be the case, then, just as long as this periosteum is in a healthy state, so long will there exist a healthy vital connexion between the root, alveolar process and gum.

2d. It has not been shown that as the dental artery, just before it passes into the foramen at the extremity of the root, does give off all the branches which supply the periosteum of the root: and if it does not, what interruption can there be to the circulation of that membrane, when a branch only of the proper artery is destroyed within the dental cavity?

3d. We know that teeth will remain in the jaw for many years in a healthy condition, after the pulp has been dead, a circumstance which could not possibly happen if the vitality was materially interfered with.

A gentleman from Boston called on me last summer to consult with me about the health of his teeth. I found but one in his mouth the least defective, and that had been plugged thirty years ago by a distinguished dentist of that city, Dr. Flagg. The pulp had been destroyed entirely at that time, by thrusting a small probe down the root. It has never given the slightest pain since. Mr. E. Baker, of New York, says, in the *Am. Jour. of Dent. Science*, vol. 1, No. vii., p. 171, that, "there is seldom little, and often no inflammation in a tooth after being treated in this manner, and what is of very great importance, there is very seldom a gum-boil, provided the operation has been performed with competent skill. The late Mr. Hudson," he

* Bell, Goddard, Harris, and others.

adds, "of Philadelphia, who certainly has not been excelled, if equalled, as an operator, followed this practice more than thirty years since, and teeth treated by him in this manner, remain to this time." If the tooth receives the greatest part of its supply of nutrition from the pulp, is there not as much reason to believe that the periosteum can supply sufficient to keep it in a tolerable state of health, as well as when the principal supply of blood is cut off from any other organ of the body, as, for instance, tying the femoral artery? As the dental pulp receives its supply of blood only from a filament of the dental artery, its circulation would seem to be almost as independent of the external membranes, as that of one finger of the hand is of another; and, to my mind, if a proper method of treatment be adopted, the success with which the pulp can be treated without necessarily involving the external membranes, is equal to that with which the skilful surgeon can treat a severe injury of one finger of the hand, without interfering with the health of either adjacent. But it may be said that the two cases are different, because one is more vascular than the other. We admit it; but the one requires a greater proportion of nutrition than the other to keep it in a vital condition, because the changes in the one is more rapid than in the other.

As an evidence that teeth do become foreign bodies, Mr. Bell alleges, that when gangrene has extended so far as to destroy the whole of the crown of a tooth, that the process seems to be arrested, and the roots remain "dead extraneous bodies in the sockets for years, without undergoing any apparent change, and seem no longer subject to disease, and even supporting neighboring teeth, till one of three different actions is set up to effect their removal, viz:—1st. Absorption of the alveoli and gums occur to such an extent as gradually to loosen the roots, by depriving them of their support. At the same time, also, a deposition of bone takes place at the bottom of the socket, which, by degrees, forces the root into the substance of the gum, until it may often be seen lying horizontally embedded in that substance, without any attachment to the bone, or the slightest lodgment in the socket; and in the third place, the roots themselves undergo absorption at their extremities, so that at length a very small portion only is, in many cases, found to remain."

He gives a case where he found the roots had become entirely absorbed, the crown broken down by gangrene, and the neck still grasped by the gum. It is inexplicable upon physiological principles, how the gum could continue its attachment to a dead ring of ivory, as this must

have been, according to the opinions of those authors whom I have cited; for the roots and crown were entirely gone. But, so far from its being a *loss* of vitality which renders the roots of teeth less liable to gangrene after their crowns have been removed by that process, the contrary, I think, will appear most evident. Mr. Bell asserts that the roots of teeth will sometimes be found lying horizontally upon the gum, without any attachment to the bone, or lodgment in the socket, which is entirely filled up with ossific matter. How can a root cling to the gum after it is displaced from the socket, unless the surface with which the gum is connected still retains a high degree of vitality? The deposition of bone in the bottom of the socket, is doubtless the result of long-continued inflammation of the periosteum of the alveolus, which, of course, would elevate the root, as it would afford a greater resistance than the soft and yielding attachments of that cavity. Now, if the roots in such cases are entirely "dead substances," or "foreign bodies," they will be cut off from their connection with the socket and gum, as dead portions of bone are in other parts of the body—*exfoliation* would be the inevitable result. The three different actions enumerated by Mr. Bell as means employed to get rid of the dead roots, are not actions set up to effect that purpose, but merely effects of a single cause, viz:—inflammation, operating to produce the same phenomena here as in other parts of the body similarly circumstanced.

Necrosis is the total death of a bone: it rarely occurs to the teeth, and the only difference between it and gangrene, according to Mr. Bell, is, that *necrosis* is caused by a sudden destruction of the vitality of a tooth, and gangrene comes on gradually; or, in other words, that when the crown of a tooth is entirely destroyed, and the internal membrane by gangrene, it is entirely analagous to *necrosis*, and accounts for the *fact*, as he is pleased to term it, that the roots of teeth are exempt from gangrene, and remain, on that account, so long in the alveolar processes without undergoing any change. From what I have said before, I need scarcely add, that instead of it being a *loss* of vitality which puts a stop to the progress of disease, it is the high degree of vitality, together with the protection afforded by the gum and socket. From the action of external agents, we can observe roots decay, until there is only a thin cylinder of bone left in the socket, which the roots possess over that of the crowns, and almost independent, too, of the pulp. The pulp only gives vitality and sensibility to the crown and surface of the dental cavity, and if it were not for the air and fluids of the mouth which find their way through the foramen at the apex of the root, and producing inflammation of the external membranes, or inflam-

mation continued to them from within, when the pulp is diseased or destroyed, it would not interfere in the least with their healthy function. The pulp, when exposed, must forever remain in a pathological condition, and the object of the practitioner should be directed to promote the greatest comfort and safety to the patient.

(To be continued.)

For the Dental News Letter.

REMOVING TEETH FROM PLATES.

EDITOR OF THE NEWS LETTER:—In your January number, I observe a useful suggestion, indicating Mr. Thresher's mode of removing teeth from plates. But as many country operators work, like myself, without a soldering furnace, I propose, for common use, the following plan, which was adopted in my practice several years since, nearly in the form now offered :

Place the work to be *unsoldered* upon a piece of coal, and pour plaster mixed with sand against the teeth, in the usual mode for soldering, but do not cover the teeth or pour upon the plate. When the plaster has set, loosen the teeth from it, draw them away nearly a quarter of an inch in a direct line on the coal, and there fasten the work without using more plaster; the object of what has been put on, being merely to retain heat, and prevent sudden changes of temperature, while the teeth remain *near but free*. Now place the piece where it will heat slowly, and then put over the fire, in a shallow iron pan, enough *fine sand* to cover the bottom half an inch or more in depth, or you can put the work in the sand, and heat them together. When both teeth and sand are well heated, remove the latter to a convenient place; put beside it, (or in it,) your spirit lamp, and then, while holding the teeth directly over the sand, apply your flame carefully, as if for soldering; when the solder is about to melt, *reverse your work*, so that when it does melt, the teeth will fall upon the hot sand by force of gravitation alone, assisted, sometimes, by a quick jerk of the hand. Thus, without the aid of an assistant, you may readily remove teeth without unusual liability to crack them, unless they are held *very far* from the sand, or the latter is not well heated.

Yours, &c.,

W. E. MAGILL.

Erie, Penna., April 29. 1853.

QUERY.—Are such communications as the above acceptable? Will you be gratified by the receipt of others?

[Certainly, certainly. We shall be pleased to hear from you at all times on such or kindred subjects.—ED.]

LETTER FROM DR. J. D. WHITE.

We make bold to publish the following communication, although of a private nature, for the noble sentiments it contains of devotion to the interests and advancement of the dental profession. They are not idle words, as all who know the writer can testify, and we feel that their publication may do some good in awakening many to renewed efforts in the same field of professional labor.—ED.

MESSRS. JONES, WHITE & McCURDY—*Gentlemen*: In acknowledging the receipt, at your hands, of a Lithograph likeness of me, you will accept my warmest considerations for the compliment you have been pleased to pay me. I know it has been done by you as a tribute of respect for me personally, more than the merit of the humble communications which have from time to time been honored with a place in your valuable journal.

Every effort that I have ever made in the investigation of the different topics of my profession, has been conducted with a serious desire to arrive at a knowledge of the truth, and every increase of useful information which I have had the pleasure and privilege of communicating to the profession, has been done with no other hope of reward, than that of believing that it might aid some one who was in similar want with myself of useful hints, to enable him to discharge better the various duties of his profession. There is a great work before us in our infant art, and I feel that all my humble exertions, compared with the aggregate, would be but as a drop of water in the ocean; yet such expressions of kindness which has come from you, who are co-laborers with me in that work, will ever nourish, keep alive and stimulate a still greater effort to push onward the great improvements of our art.

With the liveliest interest, gentlemen, in your individual welfare, permit me to subscribe myself yours humbly, J. D. WHITE.

Philadelphia, April 4th, 1853.

For the Dental News Letter.

A DASHING DENTIST.

The following description of a dashing dentist, is copied from a letter of the Paris correspondent of the New York Express a few weeks since:

“You have quack dentists in New York, of course, as we have them in Paris, but I doubt whether you can boast of such a tremendous operator as M. Duchesne, to whom I have already alluded in your columns. This gentleman rides about town in a highly illuminated wagon with a roof to it. Upon the roof is a man dressed in the costume of the middle ages, and armed with a pair of cymbals and a bass drum.

He stands in front, with a helmet and feather, and surrounded with the instruments of his profession. He stops in some unfrequented place, collects a crowd by means of the cymbal, and then invites the afflicted to apply at once for extraction and relief. A notice on the side of the wagon reads thus: '5000 francs if I miss a tooth.' This is surrounded by a halo of double teeth, the roots of which are painted to resemble parsnips, and out of whose centres grow a plentiful crop of ladies' delights. As I have long since accustomed myself to be surprised at nothing, I am never astonished to see a line formed by the victims of the tooth ache, taking their turn at having the rebellious nerve eradicated. This line sometimes extends twice round the wagon. Each sufferer pays a franc, and leaves his tooth behind him. I had always supposed it required as much reflection to have a tooth out, as to jump into Vesuvius. But the French do not think so. A maid servant passes M. Duchesne's equipage, remembers a sore spot in her under jaw, feels in her pocket for a franc, and joins the tail end of the line. Each applicant mounts on the seat with M. Duchesne, who demands the coin before proceeding. The head is then inclined backwards, the mouth opened, the tweezers inserted, and the tooth snatched from its gory bed. It is held up in the air an instant for the admiration of the multitude, and at each extraction the drum gives a bang of triumph."

The above quotation is a befitting commentary upon the charlatanism existing in the dental profession, especially in the old world. The correspondent observes: "You have quack dentists in New York;" he might, with all truthfulness, have used the inclusive expression, "every where."

To many this may seem an overdrawn picture, or an indulgence of the imagination in burlesquing by excessive comparison. It is no fancy sketch, doubtless literally true, for it is well known that artificers, similar in some degree, have been resorted to in all ages, not only in the dental profession, but in all professions and trades throughout the world.

Mr. Rembrandt Peale, the distinguished artist, when present at the commencement supper of the Philadelphia College of Dental Surgery, in March last, described a scene that he witnessed weekly, during his residence in Florence, (Italy,) many years ago. Upon an appointed day, a dentist would appear on horse-back in the public square, and without dismounting, would extract any tooth the patient designated. Five persons were entitled to receive his services gratuitously, government making provision for that number weekly. If others were present who required his services, his cards of address were distributed, by a servant who accompanied him.

Fruitful themes are suggested to the dentist of the present day for reflection and comment, by reference to these incidents. Much might be written to exert a salutary influence upon those who have just entered, or are about to enter upon the practice of Dentistry as a pursuit in life, and also upon many who have been identified with it for some time. To a young man about to embrace, or who has embraced the profession, such pictures might seem so odious in association as to deter him. He should recollect, however, that the artifices resorted to in Dentistry, are far outnumbered in the medical profession, and fully equalled in many others, if not all the pursuits of life. In our own country, especially in the cities, we have many illustrations of the mountebank practice; along our wharves persons can be daily seen, who style themselves dentists, with a small hand-case containing remedies and instruments, offering their services to sailors or barge-men, and by reference to the daily prints you will observe flaming advertisements of *doctors* professing remarkable skill as Occulists and Aurists, who know not the anatomy of the organs they presume to treat. As previously noted, such practices have ever had existence, and will be ever likely to exist; and perhaps we can admit that their being is useful in subserving comparison, to present the surreptitious picture of practice on one side, and the legitimate on the other. Instead of being a cause of determent, it should exert the incentive influence, inducing every effort to arrive at that state of perfection, that will make the comparison so great as to preclude the propriety of referring to such instances, as any thing analogous, in comparison or association.

Many have place in the profession, who seem, by their acts and conduct, to be ashamed of the pursuit by which they live; and again, those who have not the decision or nobleness to identify themselves positively with either the Medical or Dental profession, but tamper a little with each, and are carried along (figuratively speaking) on the shoulders of both.

A kind of natural history of the dentist might be written, viewing him as a genus, and dividing the class into a numerous species. This is incidentally suggested by the few preceding remarks, and can be advantaged of by those who feel disposed to discuss or dilate upon the subject. Be a dentist, with all the attributes, or abandon it. Dentistry has attained a recognized eminence, enviable in identity and such a state of perfection, that its importance and necessity is appreciated in every clime, and honored by the parent science as a speciality invaluable and indispensable. The facilities afforded at the present day are so numerous that all can possess the attainments necessary to practice, with a full knowledge of his profession.

Each one should feel it an incumbency to do all he can to promote and maintain its usefulness and importance, and to elevate it to a standard that will secure its character and dignity beyond assailment or reproach.

D. B. WHIPPLE, M. D., D. D. S.

For the Dental News Letter.

FILLING OVER EXPOSED NERVES.

MESSRS. JONES, WHITE & McCURDY :—There has been considerable controversy on the above subject, in which I have no desire to join. I am more at home in the laboratory than at the desk. All I desire is to lay before the profession the method I pursue, and let it pass for what it is worth. When a nerve is exposed by any cause, whether recent or otherwise, and the cavity will hold a plug, I do not hesitate to fill it. If there is soreness in the tooth, or it has ached recently, I make two or three applications of camphorated ether on a little cotton. I next drill a hole through the tooth to the channel of the nerve, taking care to drill far enough to cut through the nerve; the cavity may then be filled in the usual manner. I have treated a vast number of teeth by this method the past seven years, and have not failed more than once in a hundred. I discovered this mode in the latter part of 1845, and supposed it was original, and when I read the article by Dr. C. O. Cone, in your October number, setting forth Dr. Hullihen's claim to a new discovery, I supposed it the same process I had used so long. Shortly after reading the said article, I wrote to Dr. Hullihen, informing him I had reason to think my claim prior to his, and suggested that he should propose the mode of adjustment. Had I attacked his position through the public prints, I should probably have received an answer. N'importe, I have been recently informed that Dr. Hullihen's process is different from mine. It appears to me, however, a distinction without a difference. I have also been told that the method I use, has been practised by others many years before I discovered it, all of which may be possible. It will be new to some.

I am, gentlemen, your obedient servant, W. G. OLIVER.

Buffalo, N. Y., May 28.

The above communication was accompanied by two affidavits, proving the author's claim to the method described. The plan proposed, however, is not exactly similar to that of Dr. Hullihen's. This gentleman does not *excise* the nerve, as is done in the above communication, but operates as follows: "Make a hole through the gum, the outer edge of the alveolar process and the root of the tooth, and then *open the blood-vessels of the nerve.*" The one *excises*, the other *punctures*.—ED.

SPECULATIONS UPON INFLAMMATION OF DENTINE OR TOOTH-BONE.

BY PROF. ELISHA TOWNSEND, M. D., D. D. S.

[Continued from page 192.]

A tendon may be cut, bruised or burned without pain, but it is a curious fact, that twisting it produces a sensation which the subject perceives and complains of. There is something to be inferred from this fact, I think, well worth considering. The screw is, perhaps, the mechanical power capable of the greatest force of any known to us; the spiral thread may be made so close that incredible weights may be raised, and any amount of resistance overcome by it. The twisting to which a tendon can be subjected, of all other forces is most likely to compress the fibres, and to constrict the texture with the greatest intensity. If there be one twig of sensitive nerve in the cord, even beyond the power of the microscope to discover, the screw-like energy of the twist must catch it, and both by stretching, and by lateral pressure put it into pinch. The fact that twisting a tendon produces pain in it, is good evidence that there are fibrillæ of nerves in parts where they cannot be detected by any known means of dissection or examination. Pain in inflamed bone, and inflamed dentine, must be allowed to prove the same point.

I do not undertake to say here what purpose nerves serve in the bony and tendinous textures, where they are so sparsely distributed, and so delicately fine as to escape detection by the senses of the anatomist; but I do undertake to say that a tooth is not without a fine, delicate, but very decided perception of external impressions—that a sound tooth will feel both sweet and sour fluids, which assuredly do not penetrate to the pulp, is beyond dispute. A difference between a tooth wholly dead, yet remaining in the socket, and a live one, is easily and clearly demonstrable by striking it with a metallic sound, and by the effect of heat and cold.

It will be found that heat applied to such a dead tooth is generally more unpleasant than to a living one, as if it were a better conductor than the latter. I submit the hypothesis that the dead tooth has lost its natural power of regulating its temperature—a power known to belong to healthy living parts of the body. In a case recorded by Dr. George McClelland, in which he performed the operation of removing the parotid gland, and of course removed with it the portio dura of the seventh pair of cerebral nerves; the cheek was paralyzed, and, what was remarkable on this point, was, that the cheek could not afterward endure the changes of heat and cold like the other. In a hot room

which the sound cheek scarcely felt, at least not very sensibly, the subject often applied cold water to reduce the temperature of the palsied side of the face, and a similar trouble occurred when exposed to low temperatures; the injured side of the face had to be defended from cold, which the opposite sound side bore without inconvenience. By such signs as these the decisive indications of nervous life are well manifested, and they serve to establish our proposition satisfactorily.

But it is indeed enough that the teeth are parts of the living frame, subject to its diseases and united with it in functions, to establish the proposition on *a priori* principles of reasoning. The hair is alive, and the nails, for the difference between death and life even in these remotest territories of the animal organism is perfectly obvious; hair does not show its diseases by the clear signs that other parts do; that is, it does not become visibly inflamed or suffer pain, but it can die, and will indicate the fact in its own way. A finger nail that has lost its vitality is strongly marked by the fact, as a little attention will show. But the teeth exceed ordinary bones, I think, by the strength and clearness of their pathological conditions. Now, all these observations apply to diseases of those teeth, for which we resort to the remedy of excision of diseased matter and filling with gold, very clearly; and perhaps in more particulars than at present I have occasion to notice. Recollect that the dentine is capable of inflammation, of destructive inflammation. If the symptoms are less obvious, they are nevertheless as positive. They are modified by the character of the organization, and especially by the texture of the part. The vessels are too firmly impacted in earthy matter, of the greatest density that occurs anywhere in the living body, to allow of their enlargement to the extent that could make such enlargement visible. Hence, we see no redness, and no swelling of the mass in which they are situated. The pain is decided, for that is the tenderness to the touch which is felt when the diseased surface, the bony ulcer, or ulcer in the dentine, is touched with an instrument or other irritant; it is the inflammation, or exalted action in the vascular structure which occasions this tenderness. If you boldly cut below and beyond this inflamed substance, you will reach the healthy part which, uninflamed, bears touching freely, and all the pressure of filling besides; when this is thoroughly done, I mean the tender portion perfectly removed, no pressure that can be applied by the operator in packing the filling, can artificially compress the nervous fibre so as to give pain; for the closeness of its earthy particles is greater than any power the dentist's hand can equal. Again, the metallic filling is not an irritant, and will not awaken the sensibility.

If, however, the gold is not well consolidated, and the saliva is admitted around its edges, the mischief will again begin, and this is an additional reason for avoiding as much as possible the admission of saliva during the operation of plugging. Simple water is by no means so injurious; nay, the pressure employed *may*, perchance, wholly exclude it, but the water of saliva contains mucus and salts, likely to adhere in such case, and do the mischief which we dread. We generally find the most sensitive portions of the tooth in the part immediately subjacent to the enamel, at the very extremity then of the nervous life of the tooth, at the extremities or ends of the nervous fibres. We often find upon opening the pulp cavity of a tooth in health, that the main trunk of the nerve is even less tender, and less complained of by the patient, though we extirpate it with an instrument, than the edges of the cavity at the extremities of the nervous life of the dentine.

Now, it is known, as a general law of the living organism, that the special function of a part is seated in the extremities. In the arteries all the actions of nutrition are certainly performed at the ultimate points of the minutest vessels. Again, in the reparation of parts destroyed by ulceration or external violence, the granulations are produced from the extremities of the vessels, for they are deposited upon the surface of the wound. A blush upon the cheek, and every instance of efflorescence, however induced, are clear examples of activity in the capillaries, independent of, and in the absence of all excitement in the general circulation. This shows an independent capability of action in the radical tubes, and sustains the assertion that the vitality of the vessels is eminently in their extremities; the larger branches are only so many conduits, or conveyors of the vital fluid, and are not, as they need not be, endowed with any greater sensibility or functional activity, than such ancillary office demands. Of the nerves the same thing is true, as in those devoted to the external senses of vision and smell; here the special power of the nerve is found not *at all* in the trunk, but in the expanded and ramified extremity. The office of the trunks and branches of considerable size—it may be said of all sizes, which are easily exhibited by dissection—is merely that of conveying impressions from the extremities, where they are received, to the brain, and conversely, the impulse of the brain outward to the organs of motion, &c. These larger branches and their common stems are not only destitute of the specific functions belonging to their extremest fibrillæ, but they have very little, if any thing more than the common sensibility to violence and irritants that belongs to all the soft parts of the body. In their healthy state, they bear the knife in amputation, as well as the

muscular fibres do ; indeed, the principal pain in ordinary surgical cases, where the incisions are made in healthy textures, is felt in the skin, where of necessity the extreme fibrils of the nerves only are found. It must be observed as a general idea governing all indications from facts as they occur to observation, that the sensibility is proportioned and adjusted to their uses.

The convolutions of the brain, when wounded or mutilated, do not produce such pains as the nerves of feeling suffer when they are wounded. To this extent, then, the convolutions are insensible ; yet, in certain diseases, the brain becomes very painful, just as happens with other parts which manifest little or no sensibility in a healthy state. The brain is the seat of consciousness, not of the pain perceived. It need not be capable of pain in order to perceive, know, or be conscious of it in other parts. It need not be colored, in perceiving color, hot, in perceiving heat at the end of the fingers. It is coolly to play spectator and speculator in such cases ; and, like a judge, whose office it really fills, is not itself to be affected by the conditions of its objects, undergo their pains, penalties, &c. The eye-ball is very sensitive to foreign bodies, because it needs to be carefully guarded against them ; so of the glottis, or opening into the trachea : even a drop of pure water excites spasmodic action and powerful efforts to effect its expulsion. The interior of the lungs demands such jealous guarding. The pyloric orifice of the stomach is known to refuse a passage, long and earnestly, to indigestible bodies, such as metals that have been swallowed. But the cuticle, the nails, and the pad-like structure under the heel are nearly or quite insensible to such violence as they are necessarily exposed to in the performance of their several offices. The bones which are covered by the flesh and integuments, (I mean all but the teeth,) are either levers or protecting cases, and their purpose is resistance to weight and pressure ; they are the inflexible structures, and ultimate supports of all the weights and forces which the body must sustain. To endow *them* with such sensibility as the skin and muscles have, would be to expose them to incessant suffering. They need to be guarded against nothing but those forces which are capable of breaking their texture, or severing their particles, as in fractures and those diseases which may destroy their structure and mechanical integrity.

Only when such violence as fractures and erosions attack them, do they need to be susceptible of pain, which shall apprise the subject of their state, and compel the required care ; then their protecting sensibility is awakened, and we find in fractures, inflammation and ulcers of the bones, all the vital sensitiveness which any other part of the body

possesses. The teeth are under the same law ; when disease invades them, which tends to their destruction, pain is felt, not only in the deep-seated pulp, but at the very surface of the dentine, as near the exposed face of the tooth as the enamel permits. We are familiar with the fact, that a tooth may be filed deep into the dentine, and the operation will not be followed by inflammation of the new made surface, especially if kept carefully clean of the fluids of the mouth ; but if such irritants are permitted to remain about the surface of the denuded dentine, the susceptibility to inflammation will soon be severely experienced. The teeth are prospectively defended against pain from any such exposure of their interior structure as natural wear and tear must occasion. We find them worn down even to the pulp without any resulting disease. The surfaces exposed by wear and filing, or other mechanical abrasion, are, by the ordinary attrition of food and cleaning, kept free from irritating matter and thus preserved. But nature has nicely and delicately put a barrier to any other injuries, by guarding their life with the pains and penalties of disease, and injuries not within the scope of her purpose. The life of a tooth is, as we know, in no way affected generally, (when the pulp itself has not been reached by disease,) by being filled or plugged with metal. The metal in such case lies in the crown near the enamel, in the hardest portion of the tooth ; and whatever of nervous or of sanguineous supply it had before, or ordinarily has, is not interfered with. But when the pulp, that is, all or nearly all of the dental nerve, artery and vein, are boldly cut out, how then does the tooth live ? To understand this as well as we can, be it recollected that all bones in the body which have an internal cavity are covered without and lined within, with their periosteum—periosteum in effect, whatever the name by which, in various situations, it may be called. All the long bones have a periosteal covering, and their marrow cavities have a lining membrane of a like character. In the skull bone the openings through the entire bone are even visible in some places, and the transmission of blood-vessels from the investing to the lining membrane, is well established by many observations which fall under the observation of the surgeon.

I remark this point of the communication of blood-vessels between the inner and outer periosteal membranes of hollow bones, for the purpose of showing the interchange of vascular tubes between the opposite surfaces of bones. The well-known fact of such vascular inosculations obtaining every where in the body, is proved to the eye distinctly about the joints of the limbs. Above the knee, for instance, branches go off from the larger branches of the crural artery, which are seen to join

with other reflected branches, which arise from the tibial and fibular arteries, which, of course, arise below the knee, so as to form complete circuits, which are even able to continue the circulation to the foot when the main channel is tied or interrupted in the ham. There seems to be no difficulty in the blood flowing in either direction in the smaller branches of the arteries. Suppose a *true* aneurism formed on the crural artery, which is a simple dilatation of all the coats of an artery, or, the internal and middle ruptured, while the cellular or outside coat remains entire; the surgical treatment is, the putting a ligature around the artery, above the tumor; that is, between the tumor and the heart. The intention is, to protect the weakened sac, or debilitated coats of the artery from the pulsatile force of the heart, impelling the column of blood into it; a ligature which completely closes the vessel above the sac, of course cuts off the circulation there, and excludes the blood from entering on that side, or by the direct route. But, though the channel be thus closed, it is remarkable that the pulsation felt in the tumor before the application of the ligature, continues afterwards very distinctly, though much less forcibly. The blood arrested by the ligature upon the artery, which is its ordinary channel, finds its way, circuitously, through branches which come off from the main trunk above the place of the ligature, and communicate with recurrent branches which arise from the trunk or larger branches of the main channel below the obstruction. That such circuitous circulation does take the place of the direct circulation, where it is interrupted in the manner spoken of, is obvious from the fact that the extremity of the limb retains its life, and that the pulsations of its arteries may, after a few days, be as distinctly felt as ever before the operation. The pulsation in the tumor of the aneurism after the operation, is sufficient proof of a reflex current established in it. The track of the blood which reaches it now, must be through one or more of the anastomosing arteries which surround the spot, and throw a connecting arch (so to speak) around the injured part, and thus re-establish the circulation below in its accustomed channel—a sort of “*turn-out*,” such as they provide for railroads which have only one track laid, to effect a passage around certain points that happen to be occupied at the time. We have these circles of circulation almost every where. In the base of the brain, the carotid arteries of either side of the neck, joining with the vertebral of both sides, form a complete ring of arterial tube, from which the branches go off for distribution in the substance of the brain. I dwell upon these points to call attention to the fact, that blood and other vital fluids can move in more than one

direction ; and, also, that in the finer radical branches of all arteries the plan of circulation is circuitous, and in either direction, forward or backward, in respect to any particular branch, as the exigency may require. Indeed, where tubes become so small as hairs, or smaller, the great law of capillary attraction may prevail over the vital law of contractile impulse, and the contained fluid be moved in whatever direction there happens to be the least resistance ; and, in such cases, the finer the tubes the greater the power of attraction, absorption, or whatever name may be better given to the motion which results. Now, in the most solid portions of the body, the teeth, these vessels are of necessity the finest in size ; or, if we please to regard this very compact texture as simply porous, the result is the same. We need not settle the question of the existence of regular formal vessels whose tenuity, if they exist, puts them almost beyond the ken of the microscope. It is enough if the dentine and enamel be only as porous as the hardest rock or adamant, for then the fluids necessary to their life, will permeate them in all directions, and all that remains of their substance after the excision and removal of a part, will be well bedewed, or moistened and fed with the nutritive fluids which the larger vessels bring to their borders, and deliver at their surfaces. The dental and alveolar arteries do bring a constant supply to them, and it is somehow appropriated, and by some appropriate and efficient means transmitted to the ultimate particles of which the organ consists. Having gained this ground, then, let us imagine, if we cannot prove by sensible demonstration, the conditions which produce the tenderness of the inflamed cavities in carious teeth, which inflamed parts we must regard as extending as deeply into the substance as we find it necessary to cut in the remedial treatment preparatory to filling the tooth. Our hypothesis, then, is, that there is that swelling, in effect, which is one of the changes induced by inflammation, though not visible in the form of increased bulk of the part, or existing in the degree that will show redness by admission of red globules where usually only colorless particles are admitted ; and, also, that the pressure of such swelling of the bony tissue upon the minute nervous fibrillæ, is the mechanism of the changes which induce the pain or tenderness of the ulcerated part. We can help ourselves to the conception of this idea, by reflecting upon the expansion of structure which occurs in porous wood, familiarly observed in doors and other fabrics which are unprotected by paint or other insoluble coating. A damp, moist atmosphere expands such pieces of wood so forcibly that we are surprised at its amount, and at the amount of force required to overcome it. A door may get so tight

in its unyielding frame, that a man can scarcely open it; and in less solid frames, more porous panels will burst the whole structure to pieces. The moisture which effects its entrance into solid rocks, proves its presence by rending them, under severe frosts, through the very centre, with a power that can scarcely be estimated. I speak of this phenomenon only to prove the fact that water has entered or insinuated itself so as to permeate the entire substance of the solid. The porosity of flint is well proved, and that of bone is, of course, not doubtful. The ends of the long bones of young chickens are red, as you may often observe even at your dinner table; and Hunter's experiment of feeding madder to young animals, in which the madder distinctly tinged the bony structure with its color, is absolutely conclusive that in the more spongy, opener textures, the ordinary life-forces can send a fluid to every particle of the mass. If this can happen, and does occur in young soft bones, so as to be seen, why not in old solid ones? Do they die before the animal dies, though they certainly lived while it was young? Now, the absorbing or circulating power of the vascular or porous structure of a tooth, is adequate to such increase of fluid, and such force of pressure in every direction, as may painfully compress fine fibres of nerves distributed through it; for that force of capillary expansion which can burst a door frame, is sufficient to compress the earthy particles of a tooth to the extent required. It is, at least, as much greater than any compression which can be artificially applied as may explain the difference of effect which we are trying to account for.

But, when the dental nerve and artery are removed by the excavation and clearing of the fangs, something is taken away that is, more or less, essential to the life of the tooth? Certainly. It is not pretended that parts having such offices as those which make up what we call the pulp, are merely indifferent to the constitution and functions of the tooth. If the common motor and sensitive nerve of a muscle be cut, compressed, or removed, the sensibility to external impressions, and the power of voluntary motion, which they previously conferred upon the muscle, are lost. The muscle is palsied. Is it, therefore, dead? No. It lives as an individual organism, but it has lost its instrumental uses. These uses were its mobility and that sensibility to external impressions which are conveyed to the brain or seat of consciousness. But the mobility proper to its arteries, veins and lymphatics is untouched, and its organic sensibility remains unhurt, for every fibre retains the appetencies, or organic sensibility which is concerned in nutrition, growth and the reparation of parts. It, the muscle, lives on,

as the stomach, liver, bowels, lacteals and great arteries in the abdomen and thorax live.

The processes essential to its own peculiar vitality are carried on as before. All that has happened is the loss of voluntary motion and consciousness, and the consequences of these, whatever they are: it is simply a paralyzed member, paralyzed in motion and perception—these are essential to its related functions. But how is it with a tooth? It has no voluntary motion proper, and the loss of a nerve of the motor kind, leaves it capable of playing anvil, cutter, grinder or crusher as before. Its normal character is immobility and solidity. These properties conform it to its active functions or animal uses. Most probably the maxillary branches of the fifth pair of cerebral nerves, are not motor nerves at all: one branch of this same pair is regarded as the nerve of taste, or gustatory nerve, while it is the ninth pair which give voluntary motion to the tongue. I think it probable enough that the lingual branch of the fifth pair has the function of taste, because the two other branches of this great trigeminal trunk are distributed to the teeth, most probably to endow them with that kind of sense which is nearly allied to taste. If so, the harmony of their office with that of the tongue, in alimentation, would be explained, as well as their perception of sweet and sour, which we certainly have by the teeth, though it is the tongue which enables us to give them their fully distinct recognition. It is, I believe, a well established doctrine, that nerves coming from the same tract of cerebral or spinal mass, have like functions. If one branch of the fifth pair is the gustatory nerve, the functions of the other two, the upper and lower maxillary branches, very likely, have some office analogous to this. That is its sensitive root, for it has a sensitive as well as a motor root, like the spinal nerves, (and it is the only one of the cerebral nerves that has such double root.) Its sensitive root may have the function of taste, and the motor division be designed to supply voluntary motion to the skin and muscles of the eyelids, nose, lips and jaws, to which branches are distributed; indeed, its distribution upon the face and bones, and its connection with the organs of the senses, is so general, that it has been called the great sympathetic nerve of the face. Certain it is, that the teeth get no voluntary motion in their sockets from the maxillary nerve, and it is much more probable that the sensitiveness which it gives, is rather related to taste than to the perception of the common properties of bodies, such as the fingers and skin possess. The sense of resistance, or the perception of hardness and softness, may be had in the gums, or by the pressure of the cheeks, tongue, palate, lips and other

parts; and the modification of touch which we have in the mouth, for the purposes of mastication, can be well supplied by parts situated there, other than the teeth; indeed, their great solidity makes them unfit to be impressed by the mere tact of bodies, while the soft parts of the mouth may better serve that purpose.

Now, putting all these speculations together, and adopting them, for want of better light upon the subject, we will have the tooth whose pulp is destroyed, deprived only of its modified sense of taste; for touch, in the strict meaning of the word, and motion, it has not; and this deprivation will leave it adequate to all its uses as a masticating organ, and the use it serves as a part of the vocal apparatus; and, if only its organic life can be maintained, it may be allowed to remain, with excellent right to the room it occupies. So far, we have it a grinder or cutter, and a reverberator or warder of vocal sound, as good as ever, and only deprived of its sense of feeling, whatever that be, whether dental taste or whatsoever else it may be termed. Its continued existence, with this defect, (which defect the remaining teeth may very well supply) will depend upon the maintenance of the circulation in it, of sufficient perfectness for the purposes of nutrition, and the absorption which goes hand in hand with the sanguineous supply in all living parts. To secure this, it is only necessary that the blood-vessels which reach the tooth externally, through the medium of the investing membrane or periosteum, be alive and healthy; for, the subsidiary inosculation between the capillary branches of the internal and external arteries, will keep all the interior abundantly supplied, under a provision of nature which meets the changes of action which occur continually, and those interruptions and destruction of vessels which happen as incidents occasionally. The capillaries which remain connected with their trunk enlarge, and assume the double duty of supplying both sides or sections of any part that needs such accommodation. Thus, then, that interior portion of the tooth which the dental artery at first furnished with the nutritious fluid, may be sufficiently supplied, and thus, I have attempted to give some of the reasons for the possibility of a tooth remaining a useful member of the mouth, after it has been deprived of its primitive internal circulation.

CURIOSITIES OF ADVERTISING.

In an English paper we find the following bona fide advertisement:

“To be sold, the *Wisdom Tooth* of the *Duke of Wellington*, price £10; and several locks of his hair, price £1 1s. each. Apply, &c.

N. B.—Likewise a small grinder of Napoleon’s, for £5.”

MEMOIRS ON A FEW FUNDAMENTAL POINTS OF DENTAL MEDICINE, CONSIDERED IN ITS APPLICATION TO HYGIENE AND THERAPEUTICS.

BY A. F. TALMA, M. D., DENTIST TO THE KING OF BELGIUM, &C. &C. &C.

TRANSLATED BY C. A. DU BOUCHET, M. D., D. D. S.

First Series. Brussels, 1852.

[Continued from page 177.]

The permeability of the teeth and the persistance in their tissues of a circulation, doubtless feeble and obscure, are facts which physiological observations and direct experiments positively establish beyond a doubt. These observations and experiments strengthen the inductions deduced from the examination of their anatomical structure. M. Muller has seen ink rising by capillary attraction in the tubuli of the teeth of the horse. M. Serres has observed, in several preparations, blood globules choking up the canaliculæ of the dental cavity and forming there distinct striæ. Contrarily to the experiments of Hunter, on the nutrition of young animals, M. Flourens has demonstrated that by the use of madder, it is not only that portion of the teeth, the formation of which takes place while the animals are subjected to this treatment, which acquires the peculiar hue, but likewise the parts of the organ previously existing. In some cases the teeth, even their enamel, assume a manifest sanguineous tint, and receive a coloration which can be due only to the repletion of their vessels. It is perfectly recollected that during the Cholera epidemic in 1832, several surgeons, and among others M. Begin, have presented to the Royal Academy of Medicine of Paris, teeth which, as well as the other parts of the skeleton, presented a cyanosed tint analogous to that of the skin. The same observation has been made again, during the last epidemic of 1849.

After recalling the opinion of Beclard, who, although not willing to acknowledge any vascular communication between the dental pulp and the ivory of the crown, still admitted that this latter substance is continually receiving from the pulp a fluid by imbibition. Messrs. Desirabode leave this part of the question undecided. As to the ivory of the roots, do they add: we think that its texture, the organic action and the morbid alterations developing themselves in the roots, although not making evident, vessels continuous with those of the general organism, authorise at least to consider the question as settled in favor of their presence. But upon what principles, derived either from the evolution or structure of the teeth could the learned authors we have just quoted, establish such a distinction between the ivory of the root and that of the crown? No line of demarcation between the two parts

is found to justify such an opinion, and that which is applicable to the one must also be applicable to the other.

It has been impossible for me to allow the interesting labors of so many observers to be published, without endeavoring to ascertain their correctness. A long time previous, besides, I had been led, by the alterations of dental tissues, to conclusions analogous to such anatomical examinations and physiological principles have permitted us to arrive at, and certainly this very circumstance of similar results in pursuing such dissimilar roads, is highly gratifying.

With the assistance of a good magnifying glass, it is easy to see on the surface of the eroded portion of a carious tooth a cellulo-vascular layer, reddish, brown or black, granulated irregular, and exhibiting the appearance of the fungous flesh of certain ulcers of bad character. If, after having made a section perpendicularly to the ulcerated surface, we examine the plan of the section, it is easy to perceive in the invaded portions, alterations entirely vital; upon the points nearest to the ulcer, the enamel or the bony structure are softened, friable, of a brown or black color; as it dips into the substance of the tooth, the tint becomes less deep, and is finally, through gradual shades of a more or less yellow cast, lost into the normal color. Upon this morbid field, more or less extensive, the eye, aided by the magnifying glass, distinguishes linaments, striæ, which demonstrate the presence of canaliculæ, or of vessels much enlarged. It seems that in the teeth as in the caries of bones, especially in the denser portion of the latter organs, the increased vascularity precedes the softening and prepares for the destruction of the tissues, whose solid molecules are disintegrated or absorbed by the living fabric.

These phenomena become more apparent still, most incontestable, when we cut the dental substance, starting from the carious portion into lamellæ thin enough to render them very transparent, and permit us to examine them in holding them up to the light. Then the graduation of the tints, the diminution of the proportions of the solid or saline portion of the organ, the preponderance on the contrary of the cellular, tubulated or vascular portion become facts of a palpable evidence.

I could easily multiply these examples, in going over the series of the affections of a vital origin, such as exostosis, erosion, the softening of the dental substance, but they will come in better order when I have occasion to treat of those diseases especially.

If I have so strenuously insisted upon the anatomical, physiological, and pathological facts, demonstrating the vitality of the teeth, it is because this point is of an importance of the first order. This vitality

is, in fact, the key to all dental medicine ; *it alone* can connect it with general medicine, by links which reason and experience do not disapprove of. Let this vitality be considered as not existing, and the art of the dentist is no longer but a mechanical affair, more or less ingenious, more or less complicated, which will no doubt require a special dexterity, but which will no longer have but a distant relation to medicine. Let, on the contrary, this vitality be demonstrated, a light suddenly illuminates the hygiene, the pathology and therapeutics of the dental apparatus, and they immediately rest upon rational and scientific bases, from which they cannot be removed.

If the teeth were in organic bodies, as has been advanced by eminent men, (rather naturalists than physicians,) how could we connect their organization and diseases with the general constitution of individuals? How could we account for the influence exerted over them by atmospheric variations, and the thousand circumstances of regimen and morbid causes in the midst of which we live? Once developed, would not the teeth, according to that hypothesis, be exclusively submitted alike those of our artificial sets, merely to those mechanical or chemical causes of destruction capable of wearing out or breaking them, or decomposing their substance? By what rules, drawn from physiology and pathology, would it be possible to prescribe those means of treatment with the aid of which we however succeed in modifying, preserving, and even sometimes restoring to their normal condition, organs which but for that vitality would only be in the mouth of patients, carved ivory or fragments of porcelain? It is by starting from this fundamental principle of the vitality of the teeth, throughout the entire period of their duration, that we are able to distinguish, amid so many means proposed for the cure of their diseases, those which are really useful from the others, the use of which might be injurious, and even often dangerous.

II.—GENERAL IMPORTANCE OF THE CARE AND ATTENTION BESTOWED ON THE TEETH.

It is much to be wished that, in certain countries, where the diseases of the teeth are unfortunately so widely spread and so often assume the worse type, each one should feel the necessity for rational and constant attention, as well as the opportune assistance of the man of the art to watch, and, if needed, direct the labors of nature in young subjects, until the epoch of the entire consolidation of the dental apparatus.

As I have already stated in one of my previous publications, the medicine applied to the study and treatment of the affections of the

mouth and teeth, reposes upon the same principles as general medicine. The latter gives to every one advice based upon experience, to preserve health; but when illness comes, when important organs begin to suffer, the assistance of a skilful physician becomes necessary. It is even prudent, as has been laid down by sound writers, to speak from time to time about one's health and ask for advice, especially at those critical epochs of the organism when the body undergoes certain modifications, more or less intense, which dispose to disturbances of functions and disease. How many families have lost the objects of their fondest hopes, only by their too late recourse to medical advice? How many others are indebted for the happiness of still preserving their offspring, to the careful solicitude with which they have constantly surrounded them.

These reflections are in every respect applicable to the diseases of the mouth. The profession may express and diffuse, for the preservation of this important part of the economy, general principles easy to be followed and of incontestable utility; but when, notwithstanding the observance of these precepts, or in consequence of paying no regard to them, diseases develop themselves, the physician alone can discover those diseases in their origin and oppose to them appropriate means, before they have determined unretrievable alterations. The dentist alone can, during the labor of the eruption and arrangement of the teeth, prevent the disagreeable or hurtful arrangements which these organs are liable to assume, or remedy it at the outset, and correct anomalies which, at a later period, could no longer be corrected.

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These are truths of universal application, which I have always deemed a duty to inculcate in the minds and customs, in the place of the careless barbarity, or the absurd prejudices too generally met with among communities.

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Childhood, old age, trades, professions, the organs of locomotion, respiration, and other more important functions, are the object of rules and precepts which enlightened persons study and observe. Why, then, should the mouth be neglected? Why, during youth, and even during life, should we not entertain the same anxiety concerning the dental apparatus, as we do for other parts, less exposed to the sight, and often less important to health.

III.—CARES RELATIVE TO THE FIRST DENTITION.

As early as the first age in life, the mouth, and particularly the dental system, need special attention. If a few physicians have

exaggerated the dangers attached to the labors of the first dentition, it is to be feared that others, considering this labor as foreign in the greater number of cases, to the diseases of children, should fall in the opposite exaggeration far more dangerous, inasmuch as it tends to cause to neglect useful precautions, and lead away from the research of important phenomena. Whether dentition be the primitive cause, or only the predisposing cause of the diseases developed, pending its entire duration—whether it be their termination, or complicate and accompany them only, it cannot, in either case, ever be considered as an indifferent circumstance, and we must make full allowance for the share of action it may exert over the progress and intensity of accidents. Universal opinion is in harmony with this precept, and the greater mortality among children at this time of life than at any other period, renders it imperative not to neglect it.

It is not my purpose to expatiate at length upon the multifarious affections which may result from the various sympathetic reactions of the dental system, set in action upon the cutaneous, respiratory, digestive apparatus, and especially the nervous system. These developments appertain to general medicine.

It will be sufficient for me to say that, from the third month to the middle of the third year, a period, the commencement of which corresponds with the first efforts of the eruption of the incisors, and which terminates by the appearance of the second molars; that, during that period do I say, every time an affection of some importance shall arise spontaneously in the child, with phenomena ever so little insidious, the first care shall be to ascertain the progress of the dentition, to examine the mouth, and take due notice of the condition of the alveolar ridges. It must be borne in mind that the eruption of the teeth is the more difficult, the more susceptible to be accompanied with grave accidents, the larger the teeth are endeavoring to force their way out; little felt when incisors are in question, but much aggravated and painful when canines and molares. We must also remember that the eruption of several teeth at the same time is liable to cause more intense reactions.

Whether the examination of the mouth displays in the heat of that cavity, the abundance of saliva, the tumefaction, the redness, the softening of some points of the gums, the traces of a painful labor to which may be traced the morbid phenomena just enumerated; whether the complete inertia and the normal condition of the buccal tissues remove any idea of that kind, in both cases, the practitioner will have done much for the etiology as well as the diagnosis and treatment of the disease he intends to contend with.

When the cause of the disturbance seems to lay in the difficult eruption of the teeth, or when this circumstance adds itself to the accidents, and aggravates them, we should remedy it. Mild gargles, soft bodies, wet with slightly sweetened mucilage, will be held to the mouth, or given to the child usually fond of biting. If the gums are much swollen, of a deep or lividinous red ; if the fever, heat, and restlessness are considerable ; if the little patient is plethoric, one or two leeches will be applied with much advantage to the angle of the jaws, and revulsives in the meanwhile applied to the feet. A few slight punctures, made with the point of a lancet, on the gums, will have a tendency to deplete them more directly. If aphtæ are present, they should be washed with a mucilaginous decoction, sweetened with honey, and suitably dosed with hydrochloric acid.

These means usually suffice, if not to restore quiet, at least to allay local accidents, and enable nature to finish her task. In more grave cases, and particularly when nervous phenomena of somnolence or convulsion place the life of the patient in jeopardy, it may become necessary to perform a more serious operation. I mean the incision of the gum over the teeth, the eruption of which is too tardy, or meets in the density of the covering tissues an unusual difficulty. This operation should never be performed inconsiderately. Although trifling, it frightens the parents, causes pain, may expose, if the hand of the operator is not steady, to wound some part of the mouth, and, finally, does not seem to have at all times been practiced without inconvenience either for the gums, which have sometimes suppurated, or for the teeth, the premature decay of which has been attributed to lancing.

Before having recourse to it, it is necessary on one part, that serious morbid accidents should demand it, and require that the effort of eruption, the origin or aggravating complication of these accidents, be facilitated or shortened. On the other part, it is equally necessary that the tumefaction, redness, pain in the gums, should announce that the local labor has already made considerable progress, and that the tooth seems ready to appear. When these two conditions are met with, the incision of the gum acts as a complete sedative, accompanied with local depletion, which procures at once the relaxation and disengorgement of the tissues.

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A very important observation must be added to the preceding. Far more frequently than practitioners are willing to admit it, the accidents attributed specially to first dentition, are the result of the preparatory labor of the second dentition ; hidden, deep labor, displayed by ana-

tomical inspection, shaking the whole maxillary apparatus. The development of the crowns of the permanent teeth, coincides, in fact, for the greater part, with the successive eruption of the deciduous teeth. If, as happens with certain subjects, the second teeth are larger than allowable by the condition of the jaws, they will exert upon the latter a considerable pressure, will determine the distension of the cavities enclosing them, and the dull irritation of all the surrounding organic elements. This fact is produced particularly when the first teeth are small, whilst the permanent ones are preparing on a much larger scale.

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It will be seen that it becomes very difficult to distinguish in complicated morbid disturbances, what may belong to each of these two orders of disturbances, whose action is sometimes isolated and sometimes united. When the eruption of deciduous teeth is the only cause of disturbance, the incision of the gum is usually efficacious ; without proving hurtful, it remains insufficient in the cases in which the development of the permanent teeth is the cause of the accidents.

I have remarked that when the permanent teeth are in bearing with the jaws, and meet with no obstacle in their growth, the deciduous teeth usually appear without any difficulty, inducing no bad symptoms, and often unnoticed, unless the child be of a very susceptible diathesis.

These circumstances perfectly explain the different opinions of many physicians and dentists, relatively to an operation, in itself deprived of danger, but whose success depends upon fugitive conditions, requiring much experience and skill to be properly appreciated. I must repeat, that in cases of grave accidents, of which dentition may be the origin or complication, in order to derive from the incision of the gums all the benefits we should expect, it is necessary that the gum over the tooth or teeth in process of eruption, be raised, reddened, tumefied, hot, tender to the touch. In this condition, the tooth is near and ripe, as Duges correctly expresses. If the gum is softened, stretched, and exhibits a white spot, a sort of pellicle, this appearance indicates that it is almost completely absorbed or worn off, and that under that pellicle exists a projecting portion of the dental crown.

In other words, it is necessary that the labor should be *localised* ; that one or several teeth be very distinctly prominent, that the gum be particularly inflamed, and raised upon the elevated points ; if, on the contrary, the gums are vaguely tumefied and inflamed, especially at their base, we must infer that this condition of things depends upon deep-seated disturbances, caused by the development of the permanent teeth, and that incisions would prove useless.

Finally, it sometimes happens that the gum is pierced upon a point, and the tooth makes its appearance, but having reached this degree, especially as regards molar teeth, the labor becomes stationary and requires to be terminated by the intervention of the art. This indication presents itself in many subjects when cutting their dens sapientiae. The operation itself is one of the simplest. The instrument should be guided with precision, by the fore-finger of the left hand; the nail marks the place where the incision should be made, and limits its extent. The simple section, parallel to the alveolar ridge, is only adapted to incisors. Canines and molars require a crucial incision, and even, if possible, the angles should be raised with the instrument.

After the operation, the flow of blood, always useful in such cases, should be promoted by means of gargles with lukewarm mucilaginous water, and it is proper to continue the use of the means of treatment previously employed. The improvement is, in many cases, almost instantaneous, and the most formidable accidents have been known to disappear in a few hours, as if by enchantment.

I must here recall that accidents determined by dentition, or complicating it, are the more frequent and the more grave, as the subjects are the more weakly, irritable, unhealthy; badly ventilated dwellings, uncleanness, bad food, improperly directed artificial lactation, manifestly predispose to them. We must then, as far as possible, in order to prevent them, surround children with well-directed hygienic cares, among which, living in the open air, suitable clothing, frequent tepid baths, cutaneous frictions with flannel, and especially proper alimentation, hold the first rank.

IV.—CARES RELATING TO THE SECOND DENTITION.

§ 1. *Normal Phenomena.*—In the preceding article, I have noticed that the development of the crowns of the permanent teeth, coincides, in a great part, with the successive eruption of the temporary or milk teeth. Lodged in distinct cavities, beneath and back of the first teeth, the permanent ones enlarge the bony cells which contain them, destroy the partitions which separate them from the primitive corresponding teeth, act upon the roots of the latter, wear them out, shake them, and contribute to determine their fall.

There can be no doubt, that this admirable phenomenon of the removal of the deciduous teeth is as vital as mechanical. These teeth become loose, detached and fall, in consequence of the same law which separates the fruit from the tree. Even if the tooth of replacement should not exist, or deviating in its situation, it should not touch the root of the one it is corresponding to, the result would be the same,

excepting as to time. The obliteration of their nutritious vessels, the atrophy of their means of union with the alveolar walls, the loss of life, in a word, within or without, is, in fact, sufficient to isolate milk teeth, render them foreign to antagonism and hasten their fall.

The replacement of these teeth takes place nearly in the same order as their primitive eruption. The first dentition being completed from six to seven years, by the eruption of the four first large or permanent molars; the second begins with the lower central incisors, which are shed from seven to eight years. A short time after, the superior central incisors appear; then from eight to nine years, the lateral incisors, still commencing by the lower jaw; from nine to ten years, the four first small molars or bicuspides; from ten to twelve, the canines and the second bicuspides; from twelve to fourteen, the second large molars, and finally from eighteen to twenty-five, the last teeth of this category, or wisdom teeth.

The second dentition is seldom accompanied, like the first, with serious disorders, or intense reactions upon the principal organs of the economy. The labor of eruption is progressing with more slowness than that which preceded it; when it takes place, the subjects are more developed, their functions already have a more permanent equilibrium; finally, these teeth appearing almost as soon as their predecessors have fallen off, have not to overcome the resistance of the tissues of the gums. It is generally only on the occasion of new permanent teeth, such as large molars, or more particularly wisdom teeth, or anomalies in the direction of the other teeth, that we see accidents, local and general, which it may become necessary to remedy.

If, then, the epoch at which begins the shedding of the twenty deciduous teeth, generally constitutes a period critical for children, it is less on account of the labor of which the dental apparatus is the seat at that time, than in consequence of the new enlargement assumed by all the parts of the organism, manifested by this very labor.

But if it is so concerning general health and preservation of life, it is not the same as regards the special disposition and arrangement of the maxillary apparatus. During the second dentition, it acquires its definitive conformation, its more or less irregular arrangement. During that time, results are produced, which shall be, in many cases, lasting as life. This period, then, is of an extreme importance respecting the conformation of the mouth, and during all its progress the dentist should be called to exercise all his skill and care. When the second dentition is completed, the teeth symmetrically arranged on the alveolar ridges of both jaws, should form two regular lines, representing the two

halves of an ovoid, of which the superior arch constitutes the larger half, and the inferior the smaller one. The convexity of the former brought near to the latter, is more flaring out, more rounded. The teeth which it supports, are more voluminous and slightly inclined forward; whence it results that they cover the inferior ones, and gently overlap them. The direct antagonism only begins at the molar teeth. The length and projection within and without, should be equal over all the maxillary line; each tooth should present a smooth and polished surface, perfectly parallel to the curved surface which it fills up, so as to contribute to the harmony of the whole.

The texture of the teeth includes numerous varieties as regards appearance and solidity. Several characteristics resulting from these differences are hereditary or transmissible from parents to children; others appear to be proper to certain countries; some are attributable to special hygienic habits, to the use of certain substances, such as tobacco, betel, or that of aliments or drinks, variable in composition, density, temperature, etc.; finally, the individual regimen and the general constitution of the subjects, exercise over the texture of the teeth an incontestable influence. Teeth of a bluish, milky-white, as if transparent, are generally delicate, irritable, little resisting; they are met with usually in lymphatic, nervous, delicate subjects, predisposed to strumous affections. The most solid teeth are of an opaque yellowish-white, approximating the color of the bones. They are one of the characteristics of a robust, bilious, or sanguine temperament, and are usually connected with activity and power of the digestive organs. Women generally have teeth smaller and of a more brilliant white than men.

The perfection of the structure of teeth, and their resistance to the various causes of diseases and destruction to which they are exposed, depend less on the proportions of the calcareous salts entering into their composition, than on the good constitution of their organic element. From the analysis made by M. Lassaigne, milk teeth contain more phosphate of lime than the permanent teeth, (67 per cent. to 61 per cent.,) and are nevertheless less durable. In the skeleton, the bones, in taking up saline principles, become more friable, and more easily fractured. If we find in the structure of the teeth, and in that of the bony system, the impress of the vital energies of individuals, this impress is manifestly connected with the organic part of the tissue, presiding to the nutrition of the organ, not with its inert constituents, whose abundance, mollicular arrangement and cohesion are subordinate to the conditions of life.

§ 2. *Accidents*.—In consequence of this incontestable fact, that permanent teeth are formed and developed as early as the first period of life, it is evident that the observance or neglect of the rules of hygiene during these periods, the manifestations or absence of maladies in young subjects, must exert a notable influence upon the qualities of the teeth as upon the whole of the living economy. This influence had not escaped the father of medicine: these judicious remarks have been confirmed by the best modern observers, especially M. Mohon, who has extended and defined them. Struck with the importance of this subject, both as regards physiology and appreciation, it has been for a long time the object of my researches in public institutions, as well as in my private practice. My observations, compared with those of others recently published, have led me to some results not entirely devoid of interest.

If a child, between birth and the age of twelve or eighteen months, is affected with one of those serious disorders which strongly shake the constitution, such as convulsions, cerebral fever, softening of the osseous tissue, the four permanent incisors, the canines, and the first large molars, will most usually exhibit on their surface transverse lines more or less deep, asperities, small pits with dark stains, and their free edge will remain denticulated, sharp. Sometimes they will be found yellowish, slender, stunted. The situation of these alterations at the same horizontal height, on several of the teeth affected, indicates that the latter have simultaneously undergone the effect of the cause modifying their structure. If the disease liable to produce these effects manifests itself at a later period, say from two to four years, the bicuspides and the second molars will be liable to be impaired; the teeth preceedingly mentioned having their crowns formed, remain, on the contrary, in their normal condition.

The interference attributable to the diseases of children in the organization of the teeth, is not always revealed under the same appearance. Sometimes, in the place of striated lines or black punctures, dividing the crowns, we find irregular stains of an opaque or yellowish-white, which, without impairing the polish of the enamel, give it an unpleasant appearance. Finally, the alteration of the dental structure may escape observation, whether it involves the roots or the dentine exclusively. Thus, in many subjects, teeth symmetrically arranged at the two sides of the median line, and in both jaws, are attacked at the same epochs of life by morbid affections of similar nature, and are destroyed in consequence of indential affections, whilst the remainder of the teeth preserve their normal condition, and

frequently remain healthy in the mouth to a far advanced age. These phenomena indicate a common action, probably exerted at the same time on the organs which experience the same fate, whilst the neighboring organs of a same nature, but of which the development has not been disturbed, preserve their integrity.

As I have already noticed, the second dentition is always less laborious than the first. We can, however, not unfrequently observe during its progress, some more or less serious accidents. The gums often become tumefied, red, painful, and in some subjects this turgescence is propagated to the different parts of the mouth, and even to the pharynx. We also observe in a few children, an abundant flow of saliva, numerous aphtæ, or even small ulcers produced by the softening of the more inflamed points. To these local symptoms are added, when they are intense, heat in the mouth, thirst, restlessness, sometimes fever, and more rarely, nervous accidents. During the entire process, children are, moreover, exposed to various irritations, such as sore eyes, headache, general, or limited to one side of the head, bran-like eruptions on the face or scalp, engorgement of the lymphatic ganglions, submaxillary parotidian, and cervical. In lymphatic subjects these transient glandular inflammations have a decided tendency to become permanent, and constitute the origin of serofulous tumors.

In a great number of subjects we notice, towards the age of ten to twelve years, various disturbances of digestion, a general and unaccountable malaise, paleness, and other indispositions, which we can attribute only to the preparatory labor for the eruption of the bicuspides, the second molars, or the canine teeth. These phenomena are the more marked, as those teeth are larger, and consequently exert a more considerable dilating pressure on the alveolar walls.

The eruption of the wisdom teeth is more particularly difficult, and very often painful. These teeth do not always find room enough to place themselves. Pressed between the molars and the base of the coronoid apophyni, the wisdom teeth of the lower jaw often cause dull, deep pains, shooting to the ear, to the temporal region, to the entire side of the face, and having irregular exacerbations, which, according to the age of the patients and their antecedents, have often been taken for rheumatic or neuralgic affections. Those of the upper jaw more readily deviate backward, raise up the intermaxillary commissure, and more commonly cause pain in the maxillary sinus, in the ear, and in some subjects obstinate ophthalmia, the cause of which frequently remains unknown. Finally, in certain cases, we observe persisting pains in the face, sick headache, and especially a persisting occlusion

of the jaws to a point rendering the introduction and mastication of food very difficult.

In regard to the local accidents, I must add that the irritation kept up by the labor of volition of the permanent teeth, and especially the wisdom teeth, is often accompanied with swellings, followed by abscess opening along the maxillary ridge, or even outside of the mouth at some distance from the seat of disease. These openings remain fistulous as long as the teeth which keep them up are not extracted. Their origin may be the more difficult to ascertain, as in many cases the patient feels and complains of no pains in the part affected. I have seen fistulæ of this kind which had afflicted the patient for eighteen months, or even several years, the cure of which followed in a few days the extraction of the teeth which caused them.

All the affections which I have just briefly reviewed, have their origin in the exaggerated irradiations of dental congestion toward the adjacent parts, and their diagnosis is often surrounded with much difficulty and uncertainty. In the absence of local alterations, enlightening him at once, the practitioner should be guided by the attentive observation of the morbid phenomena, making due allowance for their origin, obstinacy, and succession. The accidents, whatever be their nature and their seat, have almost always a characteristic of their having manifested themselves without an apparent cause, externally or internally, their resisting the usual means of therapeutics, their appearance or disappearance without a plausible reason, according to the increase or decrease of energy assumed by the dental evolutions.

In the greater number of subjects the eruption of permanent teeth, and more particularly that of the wisdom teeth, is accomplished only by a series of efforts, which nature seems to abandon to a certain degree, to resume them afterwards with the same train of morbid phenomena, the duration of which is prolonged sometimes during several years. These sorts of fits, reproduced at variable intervals, almost always obscure the diagnosis, and tend to lead the practitioner into error, until the more attentive observations of these phenomena indicate at last the nature of the disorder.

The indications to remedy the accidents of irritation and phlogous just mentioned, are generally simple and efficacious. They do not essentially differ from those claimed, under the same circumstances, by the first dentitions. We must still employ assuaging means, local sedatives; in some cases determine gargles, punctures on the alveolar ridges, capillary depletion by means of leeches; and finally, when the gums remain raised up or imperfectly perforated, the crucial

incision will destroy the tensions, and cause the pain to cease almost instantaneously.

It results from my numerous observations, that the operation of lancing the gums in the cases requiring it, is the more efficacious during the second dentition than during the first. When we have to facilitate the eruption of permanent teeth, the disposition of the parts and the local phenomena render, almost always, the indications precise, and the age of the patient permits them to lend themselves to the operation, as well as to bear it better.

In some cases, when the wisdom tooth does not find at the extremity of the arch, sufficient room, it becomes absolutely necessary to remove it, or to create for it the room it requires, by extracting the molar tooth immediately preceding it ; but this operation being one of those which may be necessitated for the proper arrangement of the teeth, we shall again refer to it.

As I have observed, in speaking of the first dentition, it may happen that the accidents of the second be determined by the simultaneous eruption of a certain number of teeth, and by the too great amount of labor resulting from it. One of the most interesting cases of this kind is related by M. Delabarre. He states that a female child, eight years of age, of a very nervous-sanguine temperament, complained of pain in several deciduous molars. Soon a slight cough, the dilatations of the pupil, the increased irritation, loss of sleep, caused recourse to be had to the physician. Notwithstanding the judicious exhibition of sedatives, the accidents persisted without its being possible to recognize any characterized disorder. Later, febrile exacerbations appeared during the day, and delirium at night. During the intermissions, pain in the teeth.

M. Delabarre, called in his turn, thought that the accidents were caused by the too great promptitude with which the eruption of the permanent teeth was taking place. In fact, the right central, the two lateral incisors, and four bicuspides displayed their crowns at the opening of the appendices of the dental matrices. The absorption of the roots of the deciduous teeth had not had time to take place, and several of these teeth were pushed forward by the new ones. The gums were red and sensitive.

Two of the teeth, which appeared to form the greater obstacle, were extracted, and on the same day the fever ceased. The difficulty seemed to be removed ; but four days after, the primitive accidents reappeared, and it was necessary to extract the two deciduous molars

opposing the eruption of the bicuspidæ. Then only did all the symptoms diminish, and in a few days convalescence was perfect.

I have met in my own practice with a tolerable number of cases analogous to that of M. Delabarre, and by relieving the mouth of the too persisting deciduous teeth, have equally seen the accidents cease promptly. It must be remarked, however, that the extraction of these teeth should take place only when we have the certainty of the presence and forward development of the subjacent teeth; by a premature extraction, we would expose ourselves to wound or destroy the others, and even to destroy their germ, as has been observed after similar operations performed on very young subjects; the loss occasioned by such malpractice is thus irretrievable.

(To be continued.)

For the Dental News Letter.

RISODONTROPY.

MESSRS. EDITORS:—This is an operation about which there has been much wrangling. Some say that it is of old origin, others say it is of new. Some say it won't do; others say it is just the thing, and so on we might go to the end of the chapter. Now, how very strange that there should be such diversity of opinion about a thing so simple, so easily understood, and more easily tested. In no other way can we account for it, than that men are too prone to act from impressions rather than from investigation. If not so, why this difference? why this lack of confidence, and of prejudice about an operation, whose origin and history has been legally proved, and the success thereof so minutely given in over a hundred cases? As further confirmation to what has been claimed for this operation, I briefly submit my own experience, which goes to show, that if confined within proper limits, it is all and every thing that it is said to be; but if, on the contrary, it is performed without discretion upon every tooth that has an exposed nerve, it will be followed by nearly all the evils that a nervous tooth is heir to. I have performed the operation in thirty cases, and out of the thirty met with but three failures. The cases in which I failed, I herewith give, in order to show to some extent where and when the operation should be avoided. The first was caused by using an instrument with a rude and abrupt blade, and in giving it too much pressure on approaching the nerve cavity, thereby producing amputation instead of phlebotomy. I saw the patient about three weeks after the operation; he said the tooth had given him no trouble, and that he thought

it was doing as well as could be wished ; but, on examination, I found the nerve had suppurated, and the tooth somewhat discolored.

The second case was the first molar on the upper jaw of a young lady of a very nervous temperament. The nerve in this tooth had been exposed for some time, but had never ached. I made the opening, as usual, into the fang, whose nerve was exposed, which was attended with considerable pain. I then finished the operation of plugging, but not without unfavorable symptoms. This patient called on me about five hours after the operation, and told me that she had suffered severely from a dull throbbing pain for the last three hours, whereupon I enlarged the opening into the nerve cavity, and amputated the nerve, which, of course, put a stop to further trouble. I saw this patient about one month after the operation. The tooth looked healthy, and not in the least discolored. This tooth, of course, had two nerves, left in a healthy condition, and thereby preserved its vitality. The third and last case was a young man of about seventeen years old. He had a carious opening on the posterior surface of a central incisor in the upper jaw. He said the tooth had been aching for about three hours—that he had never been troubled with it before, and that he wanted it extracted. On examination I thought the tooth too good to treat as requested ; therefore, with his consent, I performed Hullihen's operation. I saw this patient about two months after the operation. He told me that the tooth had troubled him more or less for about two or three weeks from the time of plugging, after which it got easy, and gave him no further trouble. On examination I found the tooth, to all appearances, healthy, but on probing for the opening into the nerve cavity, I found it still open, and matter to ooze therefrom on pressure. The remaining twenty-seven teeth, on which the operation was performed with success—most of them I have seen frequently, and examined minutely, and in no one case could I trace any thing that would characterize them from teeth of health, beauty and utility. In performing the operation I use nothing but a simple finger-drill, made from one of the common excavators. I have the point spear-shaped, (as Dr. Hullihen recommends,) with one cutting edge very little longer than the other, and the shaft for about half an inch from the blade the size of a No. 6 needle. With this instrument I commence the operation as does Dr. Hullihen, with the exception, that I have the left hand at liberty to steady the head, and can, as I use my fingers instead of a bow, lessen the motion and pressure on approaching the nerve cavity, and thereby prevent little particles entering the cavity with the drill. Finally, I cannot close without acknow-

ledging my sincere regret in seeing a good thing so little understood, so much abused and misrepresented. When I say little understood, I speak of those who confound it with operations with which it has no more analogy than the rose and mushroom. In a conversation with one of this class a few days ago, I was somewhat astonished on being told that he had been performing the operation for over two years; but, on a little interrogation, my astonishment almost turned into pity, for I found he had reference to an operation recommended in Maury's work on Dental Surgery, that has been dead and buried for many years. Another case to which I have reference, is an article from the pen of Dr. Frissle, under the head of "*Impractical Theories.*" Here the writer associates Dr. Hullihen's name with an operation which he never claimed as his discovery, or if he has, I have never seen it. In one place he says, I do not quite understand how the nerves and blood-vessels can be severed, and, as in some cases stated, the dental pulp removed without destroying the vitality of the tooth. Now, the Hullihen operation never claimed any such nonsense, and if any one can find the like in any of Dr. Hullihen's writings, or the cases reported by the advocates of his operation, they can do more than I can. For comparison, I quote Dr. Hullihen's language. He says: "The operation consists of making a hole through the gum, the outer edge of the alveolar process and root of the tooth, into the nerve cavity, and then in opening the blood-vessels of the nerve." Now, in the name of common sense, how can this be construed into amputating or removing the nerve? In no way, we are free to say, without a very long stretch of imagination. Again, says Dr. Frissle: "Then, if the vitality of the tooth be destroyed by Miller's operation, (or Hullihen's,) the organ can be in no better state than if it had been destroyed through the carious cavity?" Now, where has the Hullihen operation ever said amputate—remove—cut off, or destroy, and thereby save the vitality of the tooth? We answer no where. Then, if not, why this blending of operations whose *modus operandi* appear so very different? The one claiming to save the vitality of the tooth by phlebotomy, and the other by amputation; or in other words, the one by opening the blood-vessels of the nerve, and the other by severing or removing those vessels. The answer and fact is plain. Dr. Frissle, like many others, (contrary to what he so strongly recommends,) has investigated an operation, and with the absurdities of that, strove to put to death the good of the operations. Again, Dr. F. says: "The operation requires a careful consideration and examination before we come to the *grand* conclusion that this is the great ultimatum long desired in dental sur-

gery." Now, that is just what it wants, what it ought to have, and what it, like every thing else of the kind, is entitled to, and if Dr. Frissle would but give it that investigation which he so strongly enjoins on others; if he would investigate the operation as given by Dr. Hulihen, as read before the American Society at Newport, and as published in the Dental News Letter; if he would examine the teeth on which the operation has been performed by Dr. Cone and others; I say if he would do all this, I think it would not be long before the Dental News Letter would be called on to publish an article under the caption of *Practical Theories*, which would wind up with "*It's the grand ultimatum long desired in Dental Surgery.*" F. Y. CLARK.

Griffin, Geo., June 13th, 1853.

For the Dental News Letter.

A NEW ODONTALGIC REMEDY.

OLEUM TEREBINTHINÆ, (OIL OF TURPENTINE.)

I venture to term this a *new remedy* for toothache, having never heard of its employment in the treatment of that affection, nor observed any reference to it in any work on Dental Surgery. The oil of turpentine, commonly known as the spirits of turpentine, is therapeutically classed as stimulant, diuretic, anthelmintic, and rubefacient, and I would claim for it the characteristics of a sedative, when applied in the treatment of toothache, (although not entirely,) and as such would recommend it to the notice of the profession. It is particularly applicable in that class of toothache resulting from the inflammation of a remnant of the nerve, especially in the palatine fang of the molar teeth; also, where toothache is created in examining the teeth, accidentally wounding, and thereby irritating an exposed pulp. The application of a small saturated pellet, securing it lightly with dry cotton, will procure almost instant relief.

It may not be amiss to state, that the suggestion for its employment was induced by witnessing its favorable results as an external application, and also as an internal remedy in various nervous disorders. The experience justifying this recommendation, is sustained by the opinion of an accredited author,* who, in speaking of its properties, says "It seems to exert a peculiar sedative or tranquilizing power upon the nervous system." Without attempting to theorize upon its properties or therapeutical virtues, I suggest it for consideration.

D. B. WHIPPLE, M. D., D. D. S.

* Prichard on diseases of the nervous system, p. 233, vol. 2.

For the Dental News Letter.

CURIOSITIES OF DENTISTRY.

MY FIRST ACQUAINTANCE WITH A DENTIST.

Some twenty-two years ago, I vegetated in what was then called by many the far West, but now, owing to the railroads, only some twenty-four hours distant from Philadelphia, viz: the western end of the State of Pennsylvania.

A neighboring farmer was blest with eight sons, and having some *ambitious views*, determined to make one of them (the brightest boy as he thought) a dentist. The lad who had entertained similar notions, was accordingly apprenticed to a practicing dentist, in an adjoining city, for the term of *three months*! He soon became thoroughly initiated into the art and mystery of carving sea-horse teeth. I might say "*en passant*," that many improvements have been introduced into the practice since then. Those were the days of "stage coaches" and "keel boats" in the western country, but they have given place now to locomotives and steamboats: therefore, what required three months time to perform then, can be done now in as many weeks, and in like proportion has dentistry advanced; for how often do we, in these days, meet a fledgeling in the profession who has been even less than three weeks in going through the process of hatching. There are some, however, in the profession who, (hard-hearted disciplinarians as they are,) require that a student shall study *two years*. Now, is this not too bad? Why they deserve the title of "*old fogies*," for their obtuseness and utter disregard of the labor and time-saving improvements of the day. But to come back to my hero. After learning all his tutor knew, he sallied forth with a sea-horse tusk, some files and silk twine. Thus equipped, he was prepared to adopt the words of one of Shakspeare's heroes with a slight modification, as thus: "*The mouth's my oyster and with my tusk I'll open it.*" But he combined amusement with business, for he added to his stock of instruments a good rifle, with bullet-pouch and powder-horn, and was thus enabled to knock over any luckless squirrel that chanced to come in his way, as he journeyed through the woods from house to house in search of employment. Thus was he prepared to practice dentistry, and practice he did, calling at each house, making himself perfectly at home, and doing all the dentistry that was needed. He was a jovial, good fellow, a perfect ladies' man, because of his good looks, but more especially because of the respectability of his profession.

Such was dentistry in the western country twenty-two years ago, and what is it now? We leave your readers to draw the comparison. R.

For the Dental News Letter.

SWAGING PLATES.

MESSRS. EDITORS:—I here attempt to give an item on swaging plates, if it has not been given by some other dentist, (if it has I have never seen it;) it may, perhaps, be of some benefit to the profession. I have practised it with success, and think it far superior to the old method.

My method is first to get the impression, and first metallic cast in the usual way; when I have obtained a correct metallic model, and before obtaining a counter model, I reduce to the consistence of paint, some Spanish whiting with water, in which I dissolve a small quantity of gum arabic. I then coat the first metallic cast with the above preparation to the thickness of the plate I wish to swage, after it has become hard and dry. I melt the tin, zinc, &c., and by pouring it over the prepared model, I obtain a counter model, which, when cold, I remove and wash the whiting from the first cast, and by placing the models together, space sufficient is left to admit the plate, which, by this method, can be swaged accurately; the plate also retains the same thickness throughout, and plates swaged in this manner are not liable to spring.

Yours, &c.,

D. H. TAYLOR.

Newark, Ohio, June 13, 1853.

For the Dental News Letter.

PREPARING THE MOUTH FOR FULL SETS OF ARTIFICIAL TEETH.

MESSRS. JONES, WHITE & McCURDY—*Gentlemen*:—I would beg leave to bring before our profession some considerations upon the manner of preparing the mouth for full sets of artificial teeth. I have long thought the custom of extracting the teeth and leaving the alveolar dental border in the condition which the removal of the teeth must of necessity leave it, without other and I believe very important surgical operation, was incomplete. By much persuasion I have prevailed upon a few persons the past year to submit to an operation which I will here describe.

After extracting the teeth, I clipped off all the mucus tissue that filled the space between the necks of the teeth, leaving a smooth border. I then dissect back the fibrous mucus tissue from the alveolar wall or border, about one-fourth of an inch, and cut off with a pair of bone forceps the alveolar edge from a fourth to three-eighths of an inch deep; this will allow the edge of the mucus tissue to come together, having the appearance of a cut only around the dental arch. In the cases I

have thus far prepared in this manner, I believe I saved the patients much inflammation and suffering, and also nature the task of removing this same matter by absorption or effusion. By this process we, in a measure, destroy the mucus excretory follicles around the dental border, and thereby they sooner become hard and firm. We shall save the risk of leaving detached pieces of bone in the gums, to find their way out by abscess or absorption. We shall save the patient most of the disagreeable effects from the effluence from the gums; we can save four months' time in fitting the gums for a permanent set of teeth, and not least, in a pecuniary view of the subject, we have better shaped mouths, and consequently easily fitted and handsomer work when done. But the difference in age, health and number of teeth to be removed, should be the criterion for our government under this operation. I offer these remarks for what they may be worth, and hope to hear from some of our able dentists upon this, or any other mode of preparing the mouth for sets of teeth.

Your obedient servant,

A. T. WILLARD.

Chelsea, Mass., 1853.

METHOD OF FORMING SOCKETS FOR GUM TEETH ON PLATES.

BY DR. J. TAFT, XENIA, O.

All are familiar with the ordinary method of wiring or rimming the outer edges of plates; the heel of the tooth rests upon it, and is thus strengthened. Plates so formed are stronger; and a better edge is presented for a contact with the soft parts.

The operation I am about to describe is mainly an extension of these advantages. I have made an effort to accomplish the same end in three different ways, each of which I will describe. In the first effort I used gold foil, No. 30, folded it into a strip of eight thicknesses, and about two and a half lines in width. After the teeth were all ground on, and retained in place, by adhesive wax, I took the strip thus prepared, and applied it to the outer edge of the plate, making it overlap the heels of the teeth, a little more than a line, fastening it to the plate with iron wire clasps; then with a burnisher rub the upper edge of the strip closely to each tooth; after it is made to fit all the teeth on the piece perfectly; then warm the plate and remove the teeth and adhesive wax carefully, allowing the strip to remain unmoved. Then solder the strip to the plate, also flow on enough solder to unite all the plies of which the strip is formed; care should be taken that too much solder does not flow into the sockets formed by the strip, also that the edge of the strip is not melted off.

In consequence of the difficulties liable to occur in this operation, I experimented still farther. Instead of using the foil, I took fine gold, and rolled it down to just that thickness, that I could fit it about the heels of the teeth with the burnisher, which was five or six times as thick as the foil. It required two or three plies of this to form the sockets; they were well formed. The principal difficulty was that there was more solder used than is desirable.

To remedy that difficulty, I adopted another method of procedure, and it I think the best. After the teeth are ground on, and all in place by the wax, cast plaster about the gums of the teeth, and the projection of the plate; cast it so that it will separate at the median line, that it may be drawn readily from the teeth and plate; we then have two plaster counter models for each piece; if full arches, from these get up plaster models, and then a model and counter model, in metal. Then take strips of plate, No. 28 to 30, and wedge them in those casts; now when applied to their respective places on the pieces, they will fit perfectly, if the manipulation has been correct. The strips are now retained in place by wire clasps, and the teeth and wax removed as before. Then that part of the plate from which the teeth and wax have been removed should be covered with plaster, permitting it to flow into and fill up the spaces between the main plate and strip; this prevents the solder from intruding into that space. The strip is now perfectly united to the plate by soldering; the solder should not be run upon the outside of the strip, and it will be much easier finished. We now have a perfect socket to receive the heel of each tooth and fit it nicely. The depth of the socket should be about a line and a half, or sufficient to retain the heels of the teeth.

The teeth can now be replaced, backed, soldered, and finished in the usual manner. It gives a neat appearance to the work, adds very much to the strength of a piece; the plate will be much stiffer; even a narrow lower plate thus fitted up, can scarcely be warped by the hands. It adds much to the strength of the teeth; the rivets do not sustain the force brought on teeth in mastication, but it comes upon the sockets; the rivets only serving to keep the teeth in place. If the sockets are properly formed, it will be impossible for the teeth to be bent inward, but must retain their position unless the gum is broken off.

By this method plates may be much lighter than they should otherwise be, and yet be stiffer. Plates are not so liable to warp in soldering on the teeth when thus made; indeed, I think it almost impossible to spring.—*Dent. Register.*

THE DENTAL NEWS LETTER.

JULY, 1853.

Notice—Change in Editorship.—It is with pleasure that the proprietors of the “Dental News Letter” announce to its readers, that Dr. J. D. WHITE, well known to the profession for his numerous and able contributions to Dental science, will become its senior Editor, assisted by the former editor, (our Mr. J. R. McCurdy.) His duties will commence with the next issue.

In securing the services of the above named gentleman we hope to accomplish, first: An able editorial department; second, additional, able, regular contributors; third, enlarged usefulness to the interests of the profession we are laboring to sustain; and fourth, an increased circulation. If these, our hopes be realized—and we see no reason why they should not be—we trust we shall receive, what we have labored to deserve, the thanks and encouragement of the profession, and we invite, nay solicit, their co-operation in the accomplishment of these purposes. As additional expenses are incurred, we would feel thankful to those few who have overlooked their subscriptions, to let us hear from them soon. Respectfully,

JONES, WHITE & McCURDY,
Proprietors and Publishers Dental News Letter.

Index.—An index for volume sixth, will be found in this number. Those wishing to bind the volume can do so, or, if they prefer, wait till the completion of the seventh volume, when both can be bound together, the two making a book of 512 pages.

The attention of those wishing an assistant is called to the advertisement which will be found on the cover. The advertiser, we are assured, is well qualified, possessing energy and industry, and would, therefore, be a valuable aid to any one desiring an assistant.

John Scott, D. D. S.—This gentleman's name was inadvertently omitted, in publishing the list of graduates of the Philadelphia Dental College, in our previous number, and we now make the correction.

"Treatment of Dental Caries, complicated with diseases of the Pulp. BY R. ARTHUR, M. D., D. D. S., *Professor of Principles and Practice in the Philadelphia College of Dental Surgery:*" JONES, WHITE & McCURDY, 1853.—The appearance of this volume will be hailed with lively satisfaction. The subject treated, is one of great interest and importance to the Dental profession, but hitherto it has commanded little attention, far less than its importance demanded. Scarcely any thing has been written with especial reference to it, and we are deeply indebted to Professor Arthur for his able performance of a good work.

An attentive perusal of these papers will amply repay for the time and attention bestowed on them. I have read them with both pleasure and profit, and have been much gratified to find that the results of Professor Arthur's investigation have so entirely corresponded with my own experience, so far as that has gone. Where that has ended, I have adopted and carried out the course of practice indicated, and in *every case*, with the most gratifying and satisfactory results.

This subject throughout the work, has been most ably and fairly treated, but evidently at the cost of much labor and patient investigation, and it is to be hoped that this valuable contribution to Dental literature will be fully appreciated by the profession.

In the course of the work, views are presented which may be at variance with some of our preconceived notions of correct practice; but they are views, nevertheless, the correctness of which has been fully established by a course of careful practice and critical observation, running through a period of several years, by one well fitted for, and in every way competent to the task. The book will commend itself to the intelligence of the profession, many of whom are *already* acquainted with its merits.

J. B. G., D. D. S.

Dr. J. D. White.—We have been favored with a copy of another lithographic likeness of this gentleman, which has recently been gotten up by a few of his friends and admirers: Dr. W. W. Fouche, C. C. Williams, and J. H. McQuillin. It is of larger size, and more artistic finish than that published in our April number, and is altogether a testimonial of which the original may well feel proud.

We are instructed to say that copies can be had gratis of either of the above named gentlemen, or of Jones, White & McCurdy, 116 Arch street, Philadelphia.

See advertisements of Baltimore and Philadelphia Dental Colleges on cover.

ON THE OPERATION FOR CLEFT PALATE.

BY JOHN GAY, ESQ., F. R. C. S., SURGEON TO THE ROYAL FREE HOSPITAL.

Charlotte D——, aged twenty, a delicate-looking girl, was admitted into the Royal Free Hospital on December 9th of last year, having a congenital cleft of the hard and soft palates, and an imperfectly-united hare-lip, with a redundancy of substance in the lip itself. Mr. Gay removed the cicatrix and re-united the lip, with considerable advantage to the patient, and she was allowed to return home for a short period.

On January 11, she was re-admitted, in order to have the soft palate united, preparatory to the use of an obturator. The fissure of the hard palate was three-quarters of an inch in breadth at its posterior part, diminishing somewhat anteriorly, where it tended to the left side, and terminated at a part corresponding to the interval between the left lateral incisor and canine teeth. The sides of the velum were healthy, and presented the usual muscular resistance on being drawn out. Deglutition was performed with greater ease than in some cases of cleft of the soft palate only, but her speech was almost unintelligible, and she was on that account exceedingly anxious to have the operation performed.

On January 21, Mr. Gay adopted the proceeding recommended by Mr. Fergusson, and which he has usually practised in similar cases—viz: section of the levatores palati and palato-pharyngei muscles, in order to relax the palate by depriving it of muscular action. This enabled the posterior valves of the velum to be approximated without difficulty; but the width of the cleft in the hard palate would occasion considerable tension of the flaps at their anterior part when brought together in consequence of the firm muscular and fibrous connexion of the velum with the posterior edge of the transverse plates of the ossa palati. To prevent such strain on the velum, Mr. Gay, in this case, as in the two others detailed, made a transverse incision immediately behind the hard palate; this had the desired effect, and the edges of the fissure having been previously pared, the parts were united by three sutures.

During the course of the operation, which was rather more tedious than usual, in consequence of the smallness of the patient's mouth, and the unusual depth of the soft palate, the parts bled rather freely; but the hemorrhage was easily arrested by the use of iced water before the stitches were tied.

The inflammation following was of a healthy character; union by the first intention had taken place after four days, and two of the sutures

were removed ; the remaining one was removed on the fifth day, when union was complete throughout.

From the first she was allowed a necessary amount of nourishment ; during the first two days, as there was some difficulty in swallowing, and as she could only take a little arrowroot by the mouth, she was ordered a pint of strong beef-tea, with a glass of sherry, as an enema.

On the third day the bowels were freely relieved by a purgative draught. The palate was cleansed daily, and lightly sponged with a little myrrh lotion, which was accomplished without producing any pain.

The transverse incisions were scarcely visible by the time the sutures were removed, the divided parts having yielded to the increased breadth of the united velum.

As soon as the palate has regained its healthy tone, an obturator will be adapted to the cleft in the hard palate, thus completing the case.

Mary B——, aged twenty-one years, admitted under Mr. Gay's care, October 8, suffering from congenital cleft of both hard and soft palates, complicated with hare-lip and fissure of the alveolar arch, the division of the latter corresponding to the interval between the lateral incisor and canine teeth on the left side ; there was also an irregular disposition of the front teeth, some of which projected in various directions ; others were only partially developed, and bounded the sides of the cleft. The margins of the cleft were pared, and four sutures were introduced. The bleeding was inconsiderable, and had stopped before the stitches were tied. From the first, nutrient fluids were administered frequently, and in small quantities. After five days, the parts having united, all but a very small piece in the middle, the stitches were removed, and the small aperture left closed subsequently by granulations.

Miss W——, of Manchester, aged sixteen. This young lady was afflicted with a cleft, extending, as in the other two cases, through the hard and soft palate ; indeed, the hard palate was almost entirely wanting, being limited to a slight ridge on either side. The distance between the edges of the imperfectly-developed horizontal plates of the palate bones was one inch and an eighth ; the distance between the anterior molar teeth being one inch and four-tenths only. Owing to the absence of the lateral incisors, without any cleft of the alveolar arch itself, the alveolar processes of the superior maxillary bones took a straight instead of a curved course from behind, to their point of union anteriorly ; from this condition of parts the fissure in the hard

palate was angular, and diminished rather rapidly from behind forwards. The defect was one of great advantage to the young lady, and the question to be decided was, whether the soft flaps could be made to unite through the whole length, so that a gold obturator might supply the remaining deficiency. Mr. Fergusson saw this case, and doubted its practicability, owing to the extreme distance by which the soft flaps were separated. Mr. Gay determined, however, to make the trial, and adopted the method recommended by Mr. Fergusson, but, in addition, practised the transverse incisions before alluded to ; by this means the flaps were released, and could be brought together mesially without tension. Four sutures were employed, and they were removed on the fourth day. This case was eminently successful, and an obturator was supplied, admirably adapted to the case, by Mr. Tibbs, the dentist of Finsbury-place, which has been worn since with the greatest comfort.

The three cases detailed above by Mr. Lane, illustrate some important points in reference to the operation for cleft palate. The labors of Mr. Fergusson have rendered the treatment of these cases all but perfect, the remaining defect being limited to the frequent occurrence of a small aperture, which has to a certain degree compromised the value of the operation. I refer to the aperture which has very frequently remained between those portions of the edges of the flaps in immediate proximity to the tubercle of the hard palate, the edges of which will, on examination, be observed to be thinned off, and generally of a hard and fibrous character.

These apertures, after the healing of the remainder of the flaps, are of various sizes ; in *some* cases they go on to closure, but their completely closing depends on two circumstances—first, the size of the aperture ; and secondly, the general tension on the flaps ; for, as was observed by Mr. Lane, at the Royal Free Hospital, these apertures heal or approximate towards closing, not so much by addition to the edges through the medium of fresh tissue, as by a stretching of the flaps generally towards the axis of the opening. In other words, the apertures are mainly closed at the expense of the flaps, and by an increase of their general tension ; the result of which is, that when the call on that tension has been obeyed to the utmost, the power of further closing ceases.

It is desirable, then, to give increased freedom to the flaps, and especially at that part where their freedom is interfered with by their connexion with the bony palate.

When cases were presented to me in which the cleft extended itself

throughout the bony as well as the soft palate, the question arose whether the latter could be united through its entire length; for on that being accomplished, a small obturator could easily be made to supply the deficiency in the hard palate, in case Mr. Avery's ingenious plan of closing it should not be feasible. The view ordinarily accepted—that in these cases there is no deficiency of soft parts; that where even the bony palate is limited to the merest ridge, still the soft palate is normally developed, although retained back by the deficient bony palate; moreover, that in children the soft palate has been known to become cleft after birth by a strain upon it in the act of crying, &c.,—led me to adopt the course that was successfully taken in these cases.

The results have shown, that as soon as the flaps are freed from connexion with the bone by *transverse incisions*, they unfold, and can be brought with the greatest ease into contact mesially.

It follows, then, that these transverse incisions, if made, but to a less extent, in the usual operation for a cleft of the *soft* palate only, will, by relieving the tension on the front part of the flaps, effectually prevent the defect alluded to—viz: the aperture which often remains an unworthy stigma on one of the most admirable and effective operations in surgery.

Moreover, these additional incisions will, to a certain degree, prevent that tension of the flaps which has been frequently observed to remain after their re-union by operation; and thus to render the palate better adapted for the performance of its functions, by making it more amenable to the muscular influences which act upon it.—*Lancet*.

LONDON HOSPITAL.

Fibrous Tumor of the Lower Jaw; Removal of the Portion of Bone involved in the Disease; Recovery.

(UNDER THE CARE OF MR. ADAMS.)

Operations are now-a-days performed with such care and accuracy, the lines of incision are so well calculated, and the margins of the wounds so neatly brought together, that some of the most formidable operative proceedings, especially upon the face, hardly leave any mark or deformity. There is no doubt that great strides have, in this respect, been made within the last twenty years, and it is extremely gratifying, both to the surgeon and to ourselves, when we see patients presenting themselves several months after the operation with faintly-marked cicatrices, and freed at the same time from troublesome or dangerous tumors.

These favorable results could, however, be rendered still more satisfactory if surgeons would now and then resort, when operating upon the face, to a little contrivance which would render exact apposition of parts almost certain. This contrivance is nothing more than tracing with black pigment or nitrate of silver certain lines, which would, after the division of the soft parts and removal of morbid growths, point to the exact spot where the margins of the wound should meet. This applies to all operations on the face, not excluding hare-lip or ectropium, for in both of these cases lines or dots would considerably aid the symmetrical union of the edges of the wounds. Every one who sees many of these operations will readily acknowledge that they are in general extremely well performed without lines, dots, and marks ; but this circumstance can hardly make us neglect additional precautions, especially when outward appearance is at stake. In rhinoplasty, for instance, the tracing is always done, and we presume that the practice might, with advantage, be extended to other operations upon the face. We saw, some time ago, Mr. Erichsen remove, at University College Hospital, the whole of the lower lip for cancer ; and there can be no doubt that he was much assisted in the operation by the lines which were made a short time before commencing. We shall soon bring this case under the notice of our readers, with two others nearly of the same kind, by Mr. Lawrence at St. Bartholomew's Hospital, and Mr. Tatum at St. George's Hospital, in which the resources of autoplasty were beautifully illustrated.

We have indulged in these remarks because Mr. Adams's patient, from whom a pretty large portion of the lower jaw was removed, recovered with no deformity whatever ; the lineal cicatrix, which will, with time, become more and more faint, being hardly perceptible. It must be confessed that much of this favorable result is owing to the care taken *not* to divide the prolabium, or red portion of the lip. In this manner the mouth retains its pristine form ; and we can confidently state, that after closely watching the operation, that there is ample room for the manipulations with a longitudinal incision which does not include the red part of the lip.

The tumor in this case was of the fibrous kind, and as, with these, recurrence is the exception, attention to the formation of a becoming appearance of the parts after cicatrization is the more incumbent upon the surgeon. Those who see much hospital practice will agree with Mr. Paget, who says, in his valuable "Lectures on Tumors," p. 49, "The favorite seats of the fibrous tumors of bone and periosteum are about the jaws ; on the other bones they are rare." Many cases of the

kind present themselves in our charitable institutions : Mr. Hancock removed a fibrous tumor from the upper jaw, at the Charing-cross Hospital, a short time ago, and we hope soon to give an account of the case. Mr. Lawrence had, some months since, at St. Bartholomew's Hospital, an extremely favorable case of the same sort ; and in all, the development of the tumor had taken place in either of the two ways thus described by Mr. Paget (*loc. cit.* :) "As to situation and connexion, the fibrous tumors of the jaws may be found isolated and circumscribed, growing within the jaw, divorcing and expanding its walls, and capable of enucleation ; but in the large majority of these tumors, the periosteum, with or without the bone itself, is involved and included." Let us now turn to Mr. Adams's case.

The patient, a woman, twenty-nine years of age, of a delicate constitution, pale, with great want of power, married, and the mother of three children, came under the care of Mr. Adams, in the beginning of April, 1852, suffering from tumor connected with the right side of the lower jaw. This abnormal growth extended from the right side of the symphysis to the anterior border of the right masseter muscle. The tumor had pushed the integument of the face forward for three-quarters of an inch, and over its centre ran a greatly distended vein. The growth projected somewhat backwards into the floor of the mouth, the sublingual gland being displaced in this direction to the extent of about a quarter of an inch. Both the canine teeth on the affected side had been removed eight months before admission, as they had become loose. The incisor teeth remained, springing apparently from the upper part of the tumor, as also the bicuspid. The development of the disease had extended over a space of twelve months, but unattended with pain ; and it was only the rapidity with which it had latterly grown, that led the patient to pay attention to the tumor.

It was clear, from the history and the symptoms just described, along with the hardness, immoveableness, and seat of this growth, that it might be classed among the fibrous tumors which take their origin in the cancellous texture of the bone, and that discutient applications would be of no avail. Mr. Adams therefore resorted to an operation, which could of course aim at no less than the removal of that portion of the jaw in which the tumor had sprung up. The patient was accordingly put on the operating-table, with the head slightly raised, and inclined to the right side ; and chloroform having been given, Mr. Adams made an incision, commencing about a quarter of an inch below the prolabium down to the lower part of the symphysis ; and from the end of this incision the knife was carried horizontally back-

wards to a little beyond the groove for the facial artery, in a direction parallel to the border of the ramus. After ligatures had been applied to either extremity of the divided artery, the triangular flap was reflected upwards from over the tumor. The incisor teeth were then extracted, and a saw applied just to the right of the symphysis, so as to form a groove for the cutting double lever forceps, by means of which the bone was cleanly divided. Both these instruments (saw and pliers) were next applied in front of the masseter, and the portion of the maxilla involved in the disease, about one inch and a half square, was removed. After a few ligatures had been applied, numerous sutures were carefully placed along the cut edges of the soft parts, so as to bring them into accurate contact. The patient was kept narcotized until towards the end of the operation, and was very cautiously removed.

Mr. Adams afforded the pupils an immediate opportunity of examining the internal structure of the tumor, and a section of it having been made, it was found to present a rather peculiar appearance, being of a mottled, partly cream-colored, and partly of a deep claret tint, the latter becoming of a deep red by exposure to the air. The development of the tumor had evidently been from the centre of the bone, and the part that projected inwards was invested with a thin osseous layer, whilst the portion pressing outwards was devoid of a similar covering. The bone was, in the latter locality, completely absorbed, a dense fibrous texture only remaining. Mr. Ward examined the growth under the microscope, and found it made up of dense fibrous tissue, intermixed with osseous structure; there was no evidence of carcinomatous degeneration.

The patient had a very favorable and speedy recovery; the parts united mostly by first intention, and in a few weeks it was hardly perceptible that any operation had been performed.

It should not remain unmentioned that chloroform is now extensively given in operations upon the face and mouth. (We saw Mr. Erichsen, at University College Hospital, a few days ago, remove a portion of the tongue whilst the patient was under the influence of the anæsthetic agent.) By nice management, and keeping a sponge impregnated with chloroform steadily under the nose, the unconscious state may be kept up for a long period. We were glad to see Mr. Adams make a deep groove with the saw before attempting to cut the jaw with the pliers; for endeavors to divide that bone without this preliminary groove, are almost always foiled, or the jaw cut in a very uneven and splintered manner.—*Lancet*.

A CASE OF THIRD DENTITION.

BY J. W. KEYES, M. D., D. D. S., OF FLORIDA.

MR. EDITOR:—Through the Register, I wish to report a case of third dentition, occurring in the person of Major Isaac Nathans, of this place.

The Major was of very slender frame and delicate constitution, until he reached his sixteenth year; but devoting much of his life to the erection of bridges, built up, under the vicissitudes to which his profession exposed him, a robust frame and iron constitution; has been temperate in eating, and the use of ardent spirits. He is now in his sixty-ninth year, and as active and vivacious as a youth. In 1834, he had a violent and protracted attack of fever, was severely salivated, from which time until 1849, his lower teeth gradually dropped out in a sound condition.

In about a year after the loss of his lower incisors, his gums swelled, producing great pain and considerable fever, with constitutional disturbance. He was confined to his bed, and after several days of suffering, a small, badly formed, ugly little central incisor made its appearance, and not long thereafter, another was thrust into light. They seem to have but little if any connection with the maxilla, and are of but little use. There are, at present, no symptoms that others will appear.—*Dental Register*.

A CASE OF REPRODUCTION OF A PORTION OF THE LOWER JAW, WITH THE TEETH.

BY DR. J. M. TODD, OF MONONGAHELA CITY, PA.

DR. TAYLOR—DEAR SIR:—I drop you a line about a very extraordinary case of second development of the lower jaw. The history of the case is this. A young lad, aged about twelve years, had his first molar, on the left side below, extracted; a slight fracture of the jaw occurred, which resulted in caries. A considerable discharge took place for about eighteen months. Drs. Biddell and Keys, failing to cure by every means usually employed in such cases, resolved upon its removal. They accordingly proceeded, and on making a free incision from about the region of the ear to within a short distance of the base of the lower jaw, the carious portion, which comprised about one-half the bone, *dropped out*. All diseased portions of bone being removed, the wound was closed, and the parts healed kindly. In the course of a few days, quite a deposit, of what appeared to be bone, took the place of the removed portion of bone; this grew and hardened, finally ossified, the articulation seeming *complete*. The use of the jaw was restored, with but a very little deformity, which consisted of a

slight enlargement of the face on the afflicted side, a *little too much new bone*, and a slight twist of the mouth. But the "wonder of wonders" is yet to be told. The boy is *now* getting a *new set of teeth* on that side also. The first and second molars being *already through*, with a *fair prospect* of the rest soon "*following suit*."

You will understand that the *entire half* of the bone was removed. I have scribbled this off in a great hurry; if you desire a more particular history of the case, I will give it to you at any time; though you here have the skeleton. The case is still doing well—the use of the jaw is entirely restored. *I don't know* that there is a similar case on record. At any rate, it gives us something to think and talk about, as it rather conflicts with our previous notions of the dental development. To say the least of it, it is a *very strange, unaccountable, lusus naturæ*.*—*Dental Register*.

INSERTING ARTIFICIAL TEETH ON PIVOT.

MR. EDITOR:—The following is my method of inserting artificial teeth on pivot, (which is different in some particulars from that of any other of which I have any knowledge,) and has proved very successful in my practice.

The first consideration is a healthy fang and periosteum, and I would always prefer a vital nerve, (I have found that teeth are much more likely to give trouble where the nerve has been lost by suppuration,) although the pain attendant on the operation is much greater.

I prepare the fang as is usually practised by most dentists, say excising the crown with a file, or saw, and forceps; file up with the stump-file as well as possible, without seriously wounding the periosteum; now drill out the canal with a flat double-edge drill, with a projecting point, which I think superior to all others, as the point not only serves to direct the instrument, but also prevents any fragments from being forced out towards the apex of the fang, and thereby involve the loss of the operation; of the drills, I have several sizes adapted to the holes in my pivot compress. I now counter-drill the end of the root, (for which purpose I have several sizes, having four cutting edges, with a centre point nearly as large as the canal,) about a line, leaving a mere border of dentine to support the crown. I now select and adapt the substitute, get the exact length of pivot, and adapt it to the canal, also to the hole in the tooth, and now being

* We hope that Dr. Todd will watch the further progress of this interesting case, and let us know how many teeth are reproduced. If they have a perfect alveolus, and if the teeth are of the class which should occupy that portion of the jaw, &c., &c.

certain that no subsequent hemorrhage or suppuration will ensue, and having prepared some of Evans' Amalgam, (don't say "Quack," for this is the only purpose for which I use it,) with as little mercury as possible, I place the pivot home in the root, (and never do I have them so large that I cannot send them home with my thumb and finger.) I now place around the pivot enough of the paste to completely fill the countersink; I now apply my crown, and press it up firmly, and all is right; I have a perfect joint, that will exclude effectually both air and water, which is the great desideratum.

In this way I have frequently inserted from one to four teeth in the same mouth without subsequent trouble, but I rarely set more than two on the same day.

Very respectfully, yours,

SAMUEL D. MUSE.

Sharon, Miss., January 29th, 1853.—*Dental Register*.

DEATH FROM EXTRACTING TEETH.

Mr. Nathan Holmes, Jr., of this town, came to his death on Saturday last, in a manner as singular as it was sudden and unexpected. About two years since, on the occasion of having a tooth extracted, he was taken with bleeding, not only in the cavity where the tooth was drawn, but from all his gums; and so freely did the blood flow that it was several days before it could be staunched, and then only by the difficult and painful operation of cauterizing. Although completely prostrated by the loss of a large quantity of blood, yet he rapidly recovered, though he has had one or two attacks since. On Friday last, he was again suddenly taken with bleeding at the gums, without any apparent cause, and so profusely did the blood flow that all efforts to stop it proved unavailing, and on Saturday he died from the effects. He was 22 years of age.—*Plymouth Rock*.

Items from the April Number of the "Dentist," published at Berlin, Prussia.—MUNICH.—There are seven dentists in this capital.

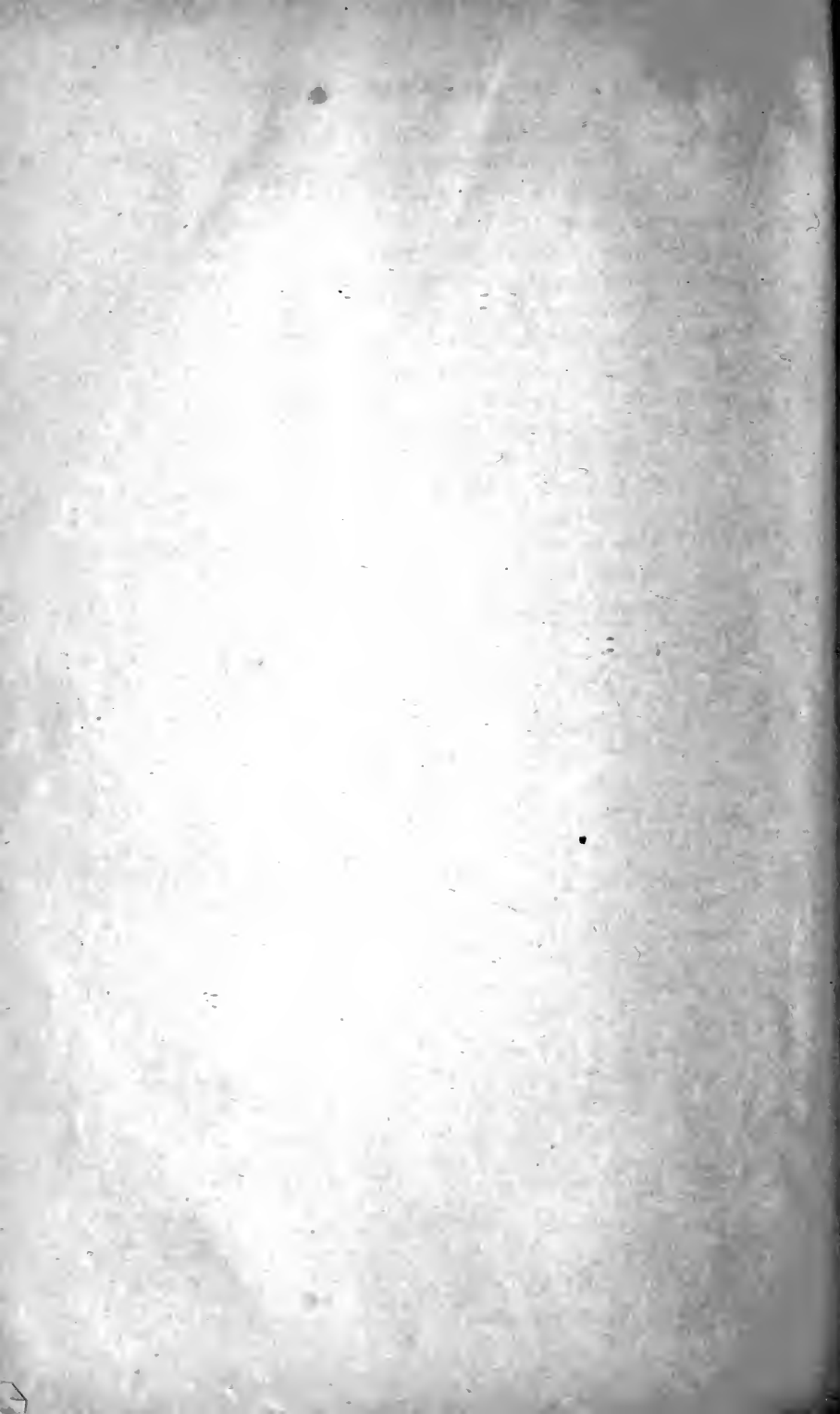
MADRID.—By the Medical Almanac, of 1852, we find 12 dentists located in this place.

BERLIN has, according to the last census, 37 dentists.

ARTHUR LUTZE, Londerhausen Eupel, advertises the second edition of his work on the cure of toothache *by smelling*.

New Set of Teeth.—Mrs. Blanchard, of Ticonderoga, N. Y., 78 years of age, has cut a new set of teeth.







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